ARCHAEOLOGICAL INVESTIGATIONS FOR THE RELOCATION OF VALMEYER, MONROE COUNTY, ILLINOIS

VOLUME 1: PROJECT OVERVIEW AND PHASE II INVESTIGATIONS

by Paul P. Kreisa, Jacqueline M. McDowell, Kevin P. McGowan, Gregory R. Walz, and Cynthia L. Balek

PUBLIC SERVICE ARCHAEOLOGY PROGRAM

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VOLUME 1: PROJECT OVERVIEW AND PHASE II INVESTIGATIONS

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ABSTRACT

The Federal Emergency Management Agency through a subcontract agreement with Woodward-Clyde Federal Services of Gaithersburg, Maryland, contracted with the Public Service Archaeology Program of the University of Illinois at Urbana-Champaign to undertake Phase II National Register of Historic Places (NRHP) evaluation of sites located in the proposed area for the relocation of the Village of Valmeyer, Illinois. Fourteen sites were evaluated using a combination of systematic surface collection and excavation techniques from 12 May to 16 June 1994. Diagnostic artifacts from the sites document Paleoindian through Mississippian components in the project area. Prehistoric features were identified at three sites, two of which demonstrated substantial integrity. Ten of the examined sites are recommended as ineligible for listing in the NRHP due to poor subsurface integrity. The portion of one site, 11MO880, within the project area is considered ineligible for NRHP listing, but the remaining portion outside the project area is unevaluated and remains potentially eligible for listing in the NRHP. Three sites, 11MO841, 11MO885, and 11MO891, have been determined eligible for listing in the NRHP. This volume is one of three that documents cultural resource management investigations undertaken at the Valmeyer relocation parcel.

ACKNOWLEDGMENTS

The Phase II and Phase III excavations and analyses conducted for the Valmeyer Relocation Project benefited from the talents of many individuals and the cooperation of a number of institutions. Funding for the project was made possible by the Federal Emergency Management Agency through a subcontract agreement with Woodward-Clyde Federal Services of Gaithersburg, Maryland. Ms. Harriett Weatherford, Associate Vice Chancellor for Research of the University of Illinois at Urbana-Champaign, voluntarily provided expedited contract processing and reduced facilities and administrative cost rates for this project. Two overriding objectives guided the University actions. First, as the flagship educational and research institution in the State of Illinois, one of its primary missions is to provide the citizens of Illinois with public service assistance whenever possible. The Great Flood of 1993 created the need for immediate professional expertise. The administration encouraged the Department of Anthropology to do whatever it took to get people into their new homes as quickly as possible. Therefore, most field investigations were completed prior to finalized contracts. The second objective was to provide the highest level of professional expertise at the lowest possible cost. The recovery and relocation efforts were supported by federal, state, and local tax dollars. The University provided a number of services gratis through a reduced overhead rate in order to maximize the effectiveness of each tax dollar. The Valmeyer relocation effort was truly cooperative with federal, state, and local agencies working together to help the people of Valmeyer recover from this disaster. A visit to Valmeyer today serves as a testament to what such cooperation can accomplish.

Significant contributors to the oversight of this project were many. Dr. Thomas J. Riley served as the faculty sponsor for this project with the Department of Anthropology. Dr. Eugene Giles and Dr. Janet Dixon Keller provided leadership as the Department Heads under which the project operated. These two individuals, along with the University's Grants and Contracts Office, provided the framework for this project to be completed. Mr. Randy W. Strong of the Federal Emergency Management Agency's Region V Disaster Recovery Office helped shepherd the project through numerous regulatory and financial issues. The Illinois Historic Preservation Agency reviewed the project on a weekly basis during the field investigations and provided significant guidance during the entire project. The extensive efforts of Ms. Anne E. Haaker and Dr. Mark Esarey from the Illinois Historic Preservation Agency are greatly appreciated. The project also was assisted by the contributions of Ms. Jane Russell, who represented Woodward-Clyde's interests during the final field investigations. The final stages of the project benefitted significantly from the efforts of Dr. John H. Sprinkle, Jr., also from Woodward-Clyde Federal Services. As a team these individuals cooperated to insure the project was completed successfully.

A special thanks goes to Mayor Dennis Knobloch of Valmeyer and Mr. Jim Smith of Korte Construction who helped coordinate and provide machinery and operators for the excavations. Without the heavy machinery, it would have been impossible to locate and document the extensive remains as quickly as they were.

The field investigations were aided by a number of individuals. The archaeological field team included Larry Abbott, Brian Adams, Steven Ahler, Richard Arroyo, Maria Aviles, Cynthia Balek, Sheena Beaverson, Alice Berkson, Susan Brannock-Gaul, Todd Brenningmeyer, Jarrod Burks, Namyi Chung, Pennie Copley, Stacy Craft, Janet Day, Randy Fink, Robin French, Matthew Frey, Tom Gillespie, James Gilmore, Darrell Gundrum, David Hall, Dawn Harn, David Hart, Kristin Hedman, Russell Herman, Eric Hollinger, Leonaitasi Hoponoa, Karl Huebchen, Douglas Jackson, Connie Joyce, Elizabeth Kane, John Kelly, Steve Klein, Paul Kreisa, Erica Libhart, James

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Report writing was divided among a number of individuals who are identified in the Table of Contents. Authors are responsible for the interpretations in their sections. Finally, report production was aided by a number of individuals. Susan Brannock-Gaul and Carl Wendt produced the ceramic and lithic artifact photographs presented in the text. Susan Brannock-Gaul, David Hixson, and Paula Luesse created the computer and line drawings illustrated in the report. Jacqueline McDowell edited the manuscript and put the text into its final version.

I thank all these individuals for their help with this project. Their efforts have aided in furthering the scientific, cultural, and historical understanding of the Valmeyer area. Without the entire team, especially the writers, this report could never have been completed.

K.P.M.
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CHAPTER 1.
INTRODUCTION

In January 1994, the Federal Emergency Management Agency—Region V (FEMA) contacted the Public Service Archaeology Program of the University of Illinois at Urbana-Champaign (PSAP) to conduct Phase II archaeological investigations at the proposed Valmeyer relocation site in Monroe County, Illinois (Figure 1-1). This work was subcontracted to the University of Illinois at Urbana-Champaign through Woodward-Clyde Federal Services under subcontract number SC94R-C-014. Field investigations for this project were conducted between 12 May and 16 June 1994. Based on these Phase II investigations, 11MO841, 11MO891, and 11MO885 were recommended as eligible for the National Register of Historic Places (NRHP) (McGowan 1994). It was decided, with concurrence from the Illinois Historic Preservation Agency (IHPA), FEMA, and the Advisory Council on Historic Preservation, that data mitigation should be undertaken at NRHP eligible sites 11MO841 and 11M0891. Investigations were not conducted at 11MO885 as it was located outside the area of immediate impact. Under a contract modification, PSAP performed site mitigation between 11 July and 16 September 1994. The results of these Phase II and Phase III investigations are presented in three volumes.

Volume 1 provides the project background information, details the results of Phase II investigations, and provides site specific evaluations for 14 sites. Volume 2 details the results of the mitigation investigation at 11MO841, the Strong site, and evaluates the findings against current regional interpretations of Middle Archaic prehistoric settlement. Volume 3 details the results of the mitigation investigation at 11MO891, the Stemler Bluff site, and evaluates the findings against current regional interpretations of Late Woodland through Mississippian prehistoric settlement.

Research Background

The need for Phase II investigations on the uplands northeast of Valmeyer was the result of a long sequence of events that began in 1992 far from Monroe County, Illinois. In the fall of 1992, climatic conditions consisting of above-normal precipitation and saturated soil were present in the upper Midwest (Bhowmik 1994). Heavy spring and summer rains in 1993 from North Dakota to Illinois created flood conditions in the Lower Missouri and the Upper and Central Mississippi River valleys. The 1993 floods were unique because rivers remained at flood stage for months, there were multiple flood crests at most locations, the floods extended well into the summer, and new flood crest records were set from Moline south to Thebes, Illinois (Chrzastowski et al. 1994). The floodwaters breached levees and caused extensive damage to farmland and communities located in the floodplains of the Mississippi and Illinois rivers, among others. One severely affected community was the Village of Valmeyer, Illinois. Federal disaster relief efforts coordinated by FEMA sought to bring long-term solutions to flood-prone areas by purchasing damaged property and financially supporting the relocation of citizens to new homes outside the floodplain. The Village of Valmeyer decided to pursue this initiative and selected a 200-ha upland parcel adjacent to the existing community for relocation (Figure 1-2).

Pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations, 36 CFR 800: Protection of Historic Properties, the selected parcel was surveyed by the Contract Archaeology Program of Southern Illinois University at Edwardsville (SIUE) to identify cultural resources that might be eligible for listing in the NRHP. That investigation found potentially eligible sites in the relocation area. Phase II evaluation to determine NRHP eligibility was recommended (Wells and Burns 1993). The IHPA

Figure 1-1. Location of the Project Area.

Figure 1-2. Aerial Photograph of the Valmeyer Relocation Parcel (Photo Courtesy David Kreighbaum, USACE).

concurred with the recommendation. The Public Service Archaeology Program of the University of Illinois at Urbana-Champaign was contracted to conduct the Phase II NRHP evaluations.

Previous Investigations

The area selected for the relocation of the Village of Valmeyer is 1.5 km northeast of the original village. The new location is situated on 200 ha of land where the Mississippi River bluff line meets the uplands immediately north of Dennis Hollow. Investigations conducted in the 1970s by Yerkes and Linder (1974) on portions of the area identified two sites within the current project limits. Sites 11MO479 and 11MO480 are both described in the Illinois Archaeology Survey site database as prehistoric habitation sites. Contract research undertaken by the American Resource Group for the Fountain Water District expansion identified a third site and an isolated find in the Valmeyer relocation project area (McNerney 1989). Site 11MO841 originally was recorded as a prehistoric lithic workshop of unknown temporal affiliation, extending 80 m north to south and 80 m east to west. These previous studies indicated the importance of this upland area for prehistoric Native Americans. The extensive Phase I pedestrian reconnaissance undertaken by SIUE indicated that nearly the entire project area was covered with archaeological remains. Based on their data, they recorded two new sites and recommended the expansion of site limits for 11MO841 (Wells and Burns 1993).

The Phase I investigation of the Valmeyer relocation parcel by SIUE was accomplished by a surface collection of the entire project area at 5-m intervals. Sites 11MO479, 11MO480, and 11MO841 were relocated, and 11MO879 and 11MO880 were defined. Site 11MO879 is recorded as an Early to Late Archaic component lithic scatter that extends 340 m north to south and 520 m east to west. A complete surface collection resulted in the recovery of 30 artifacts from a 176,800-m^2 site area. The site was recommended as ineligible for the NRHP based on the Phase I data. The previously recorded 11MO479 and 11MO480 also were recommended as ineligible for the NRHP based on Phase I data (Wells and Burns 1993).

Site 11MO880 is recorded as an Early to Late Archaic period lithic scatter that extends 410 m north to south and 310 m east to west. A complete surface collection resulted in the recovery of 690 artifacts from the 127,100-m^2 site area. This site was recommended for Phase II NRHP evaluation based on the quantity of material recovered from the surface. Similarly, the relocation and evaluation of 11MO841 resulted in a qualified recommendation for formal NRHP eligibility testing (Wells and Burns 1993) based on two factors. First, the site limits were expanded from 6,400 m^2 to 1,350,000 m^2 (a more than 200-fold increase). Second, 22 subareas, based on collection areas, were identified and determined to have different NRHP potential. Only 6 of the 22 subareas were recommended for formal NRHP evaluation. The reexamination identified historic and prehistoric components for this site including Early Archaic to Emergent Mississippian and Euroamerican (Wells and Burns 1993). The Phase I investigations by SIUE demonstrated NRHP eligibility potential in the proposed Valmeyer relocation area, making Phase II evaluations a necessity.

This volume of the Valmeyer Project report details the archaeological investigations undertaken by the University of Illinois at Urbana-Champaign for the relocation of Valmeyer. It specifically provides an introduction to the project and details the Phase II NRHP evaluation of the 200-ha Valmeyer project area. The environmental setting of Valmeyer is provided in Chapter 2. Chapter 3 presents a general culture history synopsis for the greater American Bottom region. Field and laboratory methods for both the Phase II and Phase III investigations are detailed in Chapter 4. The archaeological investigations employed standard surface collection, excavation, data recording, and analysis

techniques used throughout the Midwest including the mechanical removal of plow-disturbed soils and the hand excavation of all features defined below the plow zone. Chapter 5 presents the results from the Phase II investigations at Valmeyer. The Phase II work included a systematic surface collection, the machine-excavation of trenches, and the hand-excavation of test units. Chapter 5 also presents a discussion of the Phase II results and makes recommendations for future work. Appendices A and B provide the material inventories for the Phase II investigations. All cultural material and records associated with this project have been submitted to the Illinois State Museum Research and Collections Center for curation. Parties interested in these materials should contact either the Museum Director of the Illinois State Museum or the Regional Director of the Federal Emergency Management Agency—Region V.

CHAPTER 2.
ENVIRONMENTAL SETTING

The Valmeyer relocation project area is located on the bluff crest of an upland ridge overlooking the flood-lain of the Mississippi River at the southern end of the American Bottom in Monroe County, Illinois (Figure 1-1). At present, the adjacent (eastern) Mississippi River floodplain is 5 km wide. As a whole, the valley is approximately 10 km wide. Within the project area are a number of ridges and karstic sinkholes as well as drainages that flow down the bluff to the floodplain of the Mississippi River. A detailed discussion of the physiography, geomorphology, and the floral and faunal resources present in and adjacent to the American Bottom has been presented by White et al. (1984), and the reader is encouraged to consult that publication for a broader overview of the environmental setting for the region. The discussion below centers on the setting of the Valmeyer locality. More detailed discussions concerning the environmental setting are included within the discussion of specific sites.

Geology, Topography, and Soils

While Monroe County is cross-cut by a number of physiographic provinces (Figure 2-1), the Valmeyer project area is located in the Salem Plateau Section of the Ozark Plateaus Province, an area deeply dissected with faulted or warped strata (Schwegman 1984; Willman and Frye 1970). In contrast to much of Illinois, the Ozark Plateaus Province, including the Valmeyer area, was not directly affected by Pleistocene glaciation. Willman and Frye (1970) note that a small driftless area is present in the uplands near Valmeyer, indicating that the project area may not have been impacted directly by Pleistocene glaciation. To the east, the area was glaciated during the Illinoian stage of Pleistocene glaciation, which represents the southern limit of glaciation in the northern hemisphere (Willman and Frye 1970).

Geology

The lithologic geology of the Valmeyer area consists of an Ordovician system bedrock that is unconformably overlain by Mississippian system deposits. In the general vicinity of the project area, the Mississippian system outcrops consist of the Kidd member of Salem Limestone of the Valmeyeran series (Willman and Frye 1970). Many other Mississippian system formations outcrop in the general vicinity of Valmeyer. Below this, the Ordovician deposits include the Galena-Platteville groups of the Ottawa limestone megagroup and Maquoketa shale group of the Cincinnatian series (Willman and Frye 1970). Most important for the prehistoric archaeology of the area is the fact that these outcrops are excellent sources for a wide variety of cherts, many with differing qualities (Koldehoff 1985; White et al. 1984).

The Valmeyer relocation parcel is situated on upland knolls near the crest of a high, loess-covered bedrock ridge. Structurally, the ridge is an eastward extension of the Burlington Escarpment that continues into southern Missouri and northern Arkansas (Madole et al. 1991). The Burlington Escarpment is one of several west-facing Ozark Plateau cuestas associated with a Precambrian-cored dome centered in southeast Missouri. Doming, folding, and uplift of the Ozark Plateau region occurred in response to compressional forces that resulted from continental collision at the end of the Paleozoic era (Madole et al. 1991). In Monroe County, the northwest-trending escarpment is an erosional remnant that is the result of bisection by the Mississippi and Kaskaskia rivers, which caused its isolation from the rest of the cuesta (Horberg 1950). Where the Mississippi River cuts through the relatively resistant escarpment rocks, the valley narrows in width from 11 to 3.5 miles (17.7 to 5.6 km) (Yarbrough 1974). Locally, the cuesta is flanked on the south by the Valmeyer Anticline and Monroe City Syncline, which trend northwest-southeast, and on the north by the Colum-

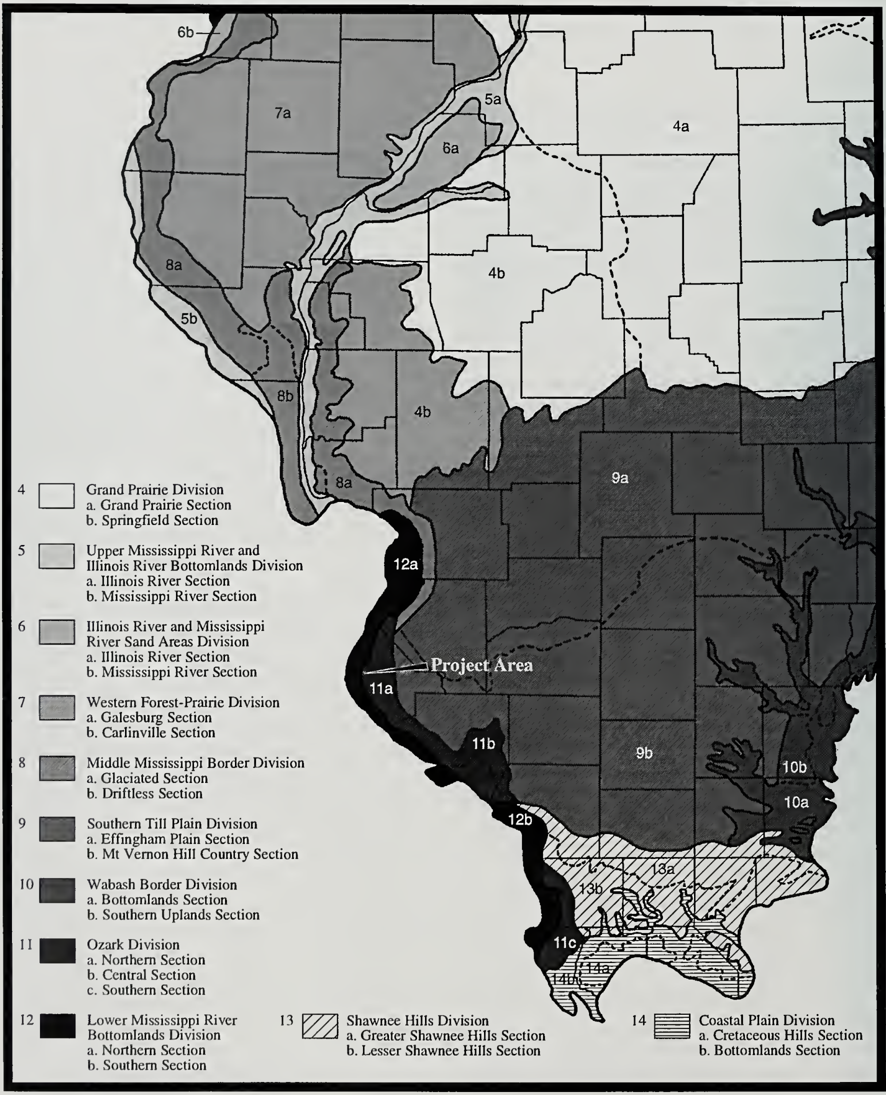

Figure 2-1. Physiographic Provinces of Southwestern Illinois (after Schwegman 1984).

bia Syncline and Waterloo-Dupo Anticline, which trend north-south (Nelson 1995). These anticlines and synclines formed during the same event as the Ozark Dome and mark the western edge of the Illinois Basin centered in southeastern Illinois.

Regionally, bedrock units dip to the east toward the Illinois Basin and progressively decrease in age eastward from the Precambrian-aged rocks of the Ozark dome to the Illinois Basin where Pennsylvanian-aged rocks subcrop. Relatively resistant Mississippian-aged limestones of the Ste. Genevieve, St. Louis, and Salem formations occur at or near the surface in the western part of Monroe County, and weaker Pennsylvanian-aged shales, sandstones, and limestones are present in the eastern part of the county. The boundary between the Mississippian and Pennsylvanian rocks generally coincides with the boundary of two physiographic provinces, the glaciated Mount Vernon Hill Country of the Till Plains section of the Central Lowlands province on the east and the Salem Plateau section of the Ozark Plateaus (Leighton et al. 1948) of the Interior Highlands (Madole et al. 1991) on the west.

At least the eastern part of the county was glaciated during the Illinoian; remnants of two Illinoian moraines extend into the eastern part of the county (Leighton et al. 1948). Reinertsen (1981) identified thin Illinoian till exposed along Andy's Run, a creek located about 9 km northeast of the Valmeyer relocation parcel. Erdmann and Bauer (1993) interpret diamicton in borings taken from the Valmeyer relocation parcel as glacial till, although rock fragments in these deposits consist only of locally derived cherts; the lack of exotic clasts suggests that the deposit is locally derived colluvium and not a till.

Surficial upland sediments in Monroe County consist of Wisconsinan loess over thin Illinoian till, pre-Wisconsinan colluvium, or Tertiary-Pleistocene residuum. The loess consists of the late Wisconsinan Peoria Loess over middle Wisconsinan Roxana Silt; their combined thickness ranges from more than 100 ft (30.5 m) along the bluff to less than 10 ft (3.05 m) in the eastern part of the county (Higgins 1987). Upland borings from the Valmeyer relocation parcel show approximately 12–13 ft (3.6–4.0 m) of Peoria Loess and 14–17 ft (4.3–5.2 m) of Roxana Silt on the higher parts of the land surface and thinner loess in the sinkholes, which Erdmann and Bauer (1993) attribute to subsurface erosion into the underlying limestone fractures. The Roxana Silt contains three color zones (r-1, r-2, r-3) in the Valmeyer area (Erdmann and Bauer 1993); the age of the base of the oldest zone, r-1, in southwestern Illinois is estimated to be 45,000–50,000 B.P. and the r-2/r-3 boundary has been radiocarbon dated to 40,000 B.P. (McKay 1986). The base of the overlying Peoria Loess dates to 25,000 years ago (McKay 1986) and deposition is estimated to have ceased about 13,000 years ago. Locally, there is no reported evidence of a Holocene loess.

Topography

The present topography in Monroe County reflects the preglacial topography since only a thin drift cover was deposited due to glaciation (Horberg 1950). In the western part of the county, the topography is strongly influenced by differences in bedrock structure and lithology. The structurally controlled Burlington Escarpment and Waterloo-Dupo Anticline locally form prominent ridges. These topographic highs are separated by a structurally controlled topographic low associated with the Columbia Syncline. Thick sequences of the karst-forming Mississippian St. Louis, and, less importantly, Ste. Genevieve limestones occur at or near the surface in the synclinal valley (Titus 1976) whereas the older, nonkarst-forming Salem limestone and older formations lie at or near the surface along the adjacent ridge crests (Erdmann and Bauer 1993). Consequently, karst (sinkhole) topography is dominant in the Columbia Syncline lowland [or Waterloo Karst Plain (Titus 1976)] and becomes relatively less important on the higher landscapes. According to Titus (1976), the St. Louis limestone in Monroe County contains about 75 sinkholes per square mile, the Ste. Genevieve has about 30 per

square mile, and the Salem limestone has less than one sinkhole per square mile.

Karstic conditions develop where dense, thinly bedded, highly fractured, nonporous limestone occurs at or near the surface in areas with sufficient rainfall and where deeply entrenched valleys promote steep gradient groundwater flow (Jacobs 1971; Odom et al. 1961). Concentrated percolation of organic acid-rich surface waters into the joints accelerates limestone dissolution and creates voids (caves, sinks, caverns, etc.). Steep groundwater gradients ensure maximal solutional activity by promoting constant flow of carbon dioxide-rich waters. Groundwater in western Monroe County has a steep gradient due to the steep Mississippi River tributary gradients of 30–40 ft (9.1–12.2 m) per mile (Yarbrough 1974) and the entrenchment of major streams in the Waterloo Karst Plain (Titus 1976).

Sinkhole development in Monroe County is common in the St. Louis limestone because it is thin-bedded, has low porosity, and is highly fractured, possessing four, relatively closely spaced joint patterns that strongly influence sinkhole patterns (Titus 1976). The joints formed due to stresses associated with warping of the Illinois Basin at the end of the Paleozoic (Nelson 1995), probably during the same event that caused doming in the Ozarks and folding in Monroe County. Titus (1976) hypothesizes that where the St. Louis limestone is more than 200 ft (61 m) thick, as in the Waterloo Karst Plain, groundwater flow is not restricted, and subterranean solutional activity occurs along joints and bedding planes. The result is an integrated network of vertically and horizontally oriented subsurface channels and cavities. According to Harris et al. (1977), there is a well-developed subterranean drainage system in Monroe County. Where the St. Louis limestone is less than 200 ft thick (61 m), the underlying less permeable Salem limestone is thought to function as an aquitard, restricting subterranean flow along the Salem-St. Louis contact.

Karstic areas in Monroe County cover 15,000 of the county's 250,240 acres (Higgins 1987) and contain sinkholes, disappearing streams, caves, and springs (Harris et al. 1977). Caves, which occur along the Mississippi bluff northeast of Valmeyer are located about midway up the bluff, between 500 and 600 ft (152.4 and 182.9 m) asl. Three types of sinkholes are identified in Monroe County by Titus (1976): normal solutional, alluvial or drift, and collapse. Approximately 75 percent of the sinkholes in the county are classified as normal solutional (Titus 1976). These types form when the ground overlying solutionally enlarged joints and fissures settles into the enlarged voids, creating closed depressions that fill with alluvial and/or colluvial sediments. Morphometrically, the normal solutional dolines range from 10–3000 ft (3.05–914.4 m) in diameter and 3–300 ft (1–91.4 m) in depth; they have been described elsewhere as having gentle soil-covered sides and flattish bottoms (Titus 1976). Alluvial or drift dolines comprise about 20 percent of the sinks in Monroe County (Titus 1976). These form when sediment overlying enlarged joints collapses into the void, creating a crater-like depression. The slopes of the sink, which are formed entirely within the collapsed surficial sediment, constantly change shape when not stabilized by vegetation. Alluvial or drift sinks are much smaller than normal solutional dolines and range from 20–30 ft (6–9 m) in diameter and 4–10 ft (1.2–3.1 m) in depth. Collapse dolines comprise less than one percent of the county's sinkholes (Titus 1976). They form due to near-surface collapse of cave roofs and are most common near springs. Morphologically, collapse sinks are oval to irregular in plan and possess abrupt, steep-sided walls; they vary in size from small to large and commonly have a high depth to diameter ratio; the base of the sink typically contains limestone blocks (roof fall).

Many of the sinks in Monroe County occur in the Waterloo Karst Plain and appear to be most numerous at elevations between 450 and 650 ft (137.2 and 198.1 m) asl. These elevations probably represent the elevations of the St. Louis-Ste. Genevieve for-

mations. Erdmann and Bauer (1993) identified at least 14 sinkholes in the uplands of the Valmeyer relocation parcel; most of these sinks are oriented in a linear pattern trending N10–15°E reflecting the trend of underlying joints. According to Worthen and Shaw (1873), the sinkholes in the county are commonly 50 ft (15.2 m) or more deep and possess open bottoms wherein water entering the sink drains into underground caverns through fissures in the top of the limestone. Occasionally the fissures become clogged with sediment, and surface waters are then ponded. Most of the sinkhole ponds, however, are short-lived because clogging usually occurs above the water table and removal of the temporary sediment plug results in rapid draining. Harris et al. (1977) note that in Hardin County, Illinois, a 40-acre pond in Big Sink disappeared overnight when its sediment plug gave way. According to Bowman (1907), ponded sinkholes are often drained by farmers if the slopes are not too steep for cultivation. Sinkhole ponds are artificially drained through deep trenches connecting adjacent sinkholes so that the water in one sink drains into the other. Undrained sinks or dry sinks that are too steep for cultivation are often vegetated on their sides and bottom with trees and bushes.

Soils

Most of the soils in the Ozark Plateaus Province consist of a deep loess with a thinner mantle along the bluffs and in the interior ravines. In the project area, between 150 and 300 inches (3.8 and 7.6 m) of unconsolidated loess overlies bedrock. The soils in the project area have been grouped into the Muren-Alford association (Figure 2-2) (Higgins 1987). Muren-Alford soils occur on ridges and dissected side slopes with the ridges ranging from narrow to wide and the slopes from steep to gently sloping. These soils tend to be well- to moderately well-drained and moderately permeable. Muren-Alford association soils are silty and were formed in loess (Higgins 1987).

More specifically, the soils in the project area are classified in the Alford series. The Alford soil is a Typic Hapludalfs, formed under natural forest vegetation. Typically, Alford series soils are present on ridge tops and side slopes and in areas of karst topography. The most common soil type in the project area is Alford silt loam, 2 to 5 percent slopes while Alford silt loam, karst, and several Alford silt loam subtypes commonly found on side slopes and within sinkholes also are present. Several other minor soil types are identified along the drainages separating the knolls (Higgins 1987). The Alford series soils typically have a 25-cm-thick brown silt loam plow zone (Ap horizon) followed by an 18-cm-thick dark brown silt loam Bt1 horizon, after which is a 15-cm thick dark brown silty clay loam Bt2 horizon (Higgins 1987). This general sequence was observed throughout the project area, although variations in the thickness of various horizons were encountered. Processes of soil deposition also differed in the sinkholes, due in part to post-Euroamerican farming and subsequent erosion. According to Higgins (1987), almost all of the more gently sloped sinkholes are cultivated; in fact, some sinkholes in the Valmeyer relocation parcel are barely discernable because of increased infilling due to agricultural practices (Erdmann and Bauer 1993).

Natural Setting

The Valmeyer area contains a number of physiographic zones, each with different depositional histories and environmental characteristics. The project area is located in the northern section of the Ozarks Division. Adjacent and to the west is the northern section of the Lower Mississippi River Bottomlands Division while to the east is the Mount Vernon Hill Country section of the Southern Till Plain Division (Schwegman 1984) (Figure 2-1). These three zones were created by vastly different physiographic processes. The alluvial floodplain of the Mississippi River was formed by glacial flood waters. In contrast, Willman and Frye (1970) identify a narrow, unglaciated band along the bluff.

Figure 2-2. Soil Associations Present in Monroe County (after Higgins 1987).

Finally, to the east is a glaciated till plain bounded by the Glasford Formation. The Glasford Formation forms the southern limit of continental glaciation in the northern hemisphere and was created during the Illinoian and Sangamonian stages of Pleistocene glaciation with the deposits near Valmeyer most likely originating from the Erie glacial lobe (Willman and Frye 1970).

The Valmeyer project area is located in the northern section of the Ozarks Division (Schwegman 1984). The Ozarks Division in Illinois is part of the Salem Plateau of the Ozarks uplift, an area that was mainly forested, although hill prairies also were present. Today, forests are still found along the bluff edge, but much of the area has been cleared for agricultural purposes (Higgins 1987). The original forests were comprised of numerous oak species, sugar maple, basswood, Ohio buckeye, beech, and tulip tree. The distribution of these taxa are highly dependent on soil moisture conditions. The Ozarks Division also contains unique animal and plant species, many of which are more commonly Ozarkian, southern, or southwestern, and are rare or absent elsewhere in Illinois (Schwegman 1984). The topography of the Ozarks Division consists of a dissected plateau with steep bluffs along the Mississippi River. The bluffs are interrupted by ravines and stream canyons and a well-developed sinkhole plain topography (Schwegman 1984).

To the west is the Mississippi River and its associated floodplain, part of the northern section of the Lower Mississippi River Bottomlands Division (Schwegman 1984). The floodplain originally contained wet and mesic prairies, marshes, and forests along with meander scars and oxbow lakes created by the meanderings of the Mississippi River. Floodplain forests included maple, ash, elm, honey locust, sugar berry, and pecan trees. To the east of the project area is the dissected Illinoian glacial till plain of the Mount Vernon Hill Country section of the Southern Till Plain Division (Schwegman 1984). This section is characterized by hilly to rolling topography with poor soils. Approximately 60 percent of this section was forested with the remainder covered by prairie. Forests were dominated by a number of oak and hickory species.

Surface Drainage

Surface drainage in Monroe County consists of a well-developed dendritic pattern in nonkarst regions or in karst regions where streams are superimposed below karst-forming limestones, and a karst drainage pattern characterized by disappearing streams (e.g., in the Waterloo Karst Plain). The upland ridges of the Valmeyer relocation parcel are drained on the north, west, and south by relatively short, straight, high gradient streams dissecting the Mississippi bluff. North-flowing Bond Creek, located about 2 km to the east of the project area, is a major tributary of Fountain Creek, which is a deeply entrenched meandering stream flowing through the Waterloo Karst Plain. Bond Creek heads into the nonkarst region along the crest of the Burlington Escarpment and flows down the cuesta's back slope. According to Titus (1976), the river is entrenched into the top of the nonkarst-forming Salem limestone, which explains its (and Fountain Creek's) ability to maintain surface flow through a highly karstic landscape. Stream flow is maintained largely by surface runoff during the wetter parts of the year and by groundwater discharge through springs during drier seasons (Titus 1976).

Climate

The modern climate in the Valmeyer area can be characterized as continental, with cold winters and hot summers. Temperature extremes range from a daily average of 33° F in January to 76° F in July. Precipitation averages just under 37 inches, with 60 percent of this total falling between April and September, often in the form of thunderstorms (Higgins 1987). This climatic regime stabilized about 4000 B.P. (Delcourt and Delcourt 1985). Prior to that, climate in the Valmeyer area changed a number of times. Between 23,000 and 16,500 B.P., the area had a boreal climate with abundant mois-

ture. During the next 4,000 years, between 16,500 and 12,500 B.P., the climate was cool with increased precipitation. From 12,500 to 8500 B.P., encompassing the earliest human occupation of the area, a warm temperate climate prevailed. The last major climatic change to take place in the region prior to the establishment of an essentially modern pattern is known as the Hypsithermal Interval. The Hypsithermal Interval, lasting between 8500 and 4000 B.P., is characterized by warmer and drier conditions than those in the modern period.

Vegetation

The location of the project area suggests that the prehistoric inhabitants would have been able to exploit plant and animal resources located in the uplands, along the bluff slopes, and in the floodplain of the Mississippi River (Figure 2-3). Braun (1950) includes the project area in the Western Mesophytic Forest Region and more specifically in the Ozark Hills Section. Vegetation in this section consists of mixed mesophytic communities comprised of oak, beech, maple, tulip, hickory, ash, and elm, among others. The Mississippi River floodplain communities represent an extension northward of the Southeastern Evergreen forests (Braun 1950).

Immediately prior to the establishment of modern floral communities, perhaps as early as 18,000 B.P., the project area was covered by a boreal forest (Delcourt and Delcourt 1985). The floral community most likely present at the time of the prehistoric occupation of the project area is an oak-hickory forest, which became established by approximately 18,000 B.P., although species composition probably changed through time in response to changes in climatic conditions (Delcourt and Delcourt 1985; White et al. 1984). This forest was found from the bluff edge to a distance of 6–20 km to the east. Up to 90 percent of the trees consisted of either oak or hickory, although smaller, specialized habitats, including hill prairies, sinkholes, and limestone glades, were interspersed. Importantly, this community could have provided the prehistoric inhabitants with an abundance of nuts to harvest. Beyond the oak-hickory forest to the east was the prairie, dominated by grasses, shrubs, and forbs. Prairies were established in Illinois between ca. 8500 and 5500 B.P., due in part to the warming and drying associated with the Hypsithermal Interval (Holloway and Bryant 1985). Closer to the project area, to the west, were several floodplain and bluff-slope floral communities. On the floodplain proper, communities included river edge, bottomland forests, lakes, sloughs, ponds, and prairies. The bluff slopes and stream drainages contained both floodplain and upland species. More detailed information on these communities can be found in Gregg (1975), Hus (1908), Mohlenbrock and Voigt (1959), Shelford (1963), Telford (1927), Welch (1975), and Zawacki and Hausfater (1969).

United States Government Land Office (GLO) survey notes dating 1810 and maps dating 1836 and 1840 are in general agreement with the modern characterization of the Valmeyer area vegetation and environment. Survey notes describe the sections within which the project is located as hilly with third-rate timber, evidently mostly consisting of oaks and shrubs, although hickory and locust are also mentioned (Illinois Historical Survey [IHS], microfilm copy of Illinois Land Records, Illinois Field Notes Vols. 12, 39, and 58). The maps also depict the presence of floodplain lakes and two floodplain prairies to the southwest of the project area (IHS, microfilm copy of Illinois Land Records, Illinois Township Plats Vol. 32:56–57) (Figure 2-4). The floodplain is characterized as a generally rich bottom.

Fauna

Faunal resources also can be grouped by habitat zones (White et al. 1984). To the west of the project area in the Mississippi River floodplain were aquatic-marsh, forest, and prairie habitats while the bluff crest would have been dominated by forests. To the east, prairie habitats were increasingly common. Within this mosaic of animal habitats, edges,

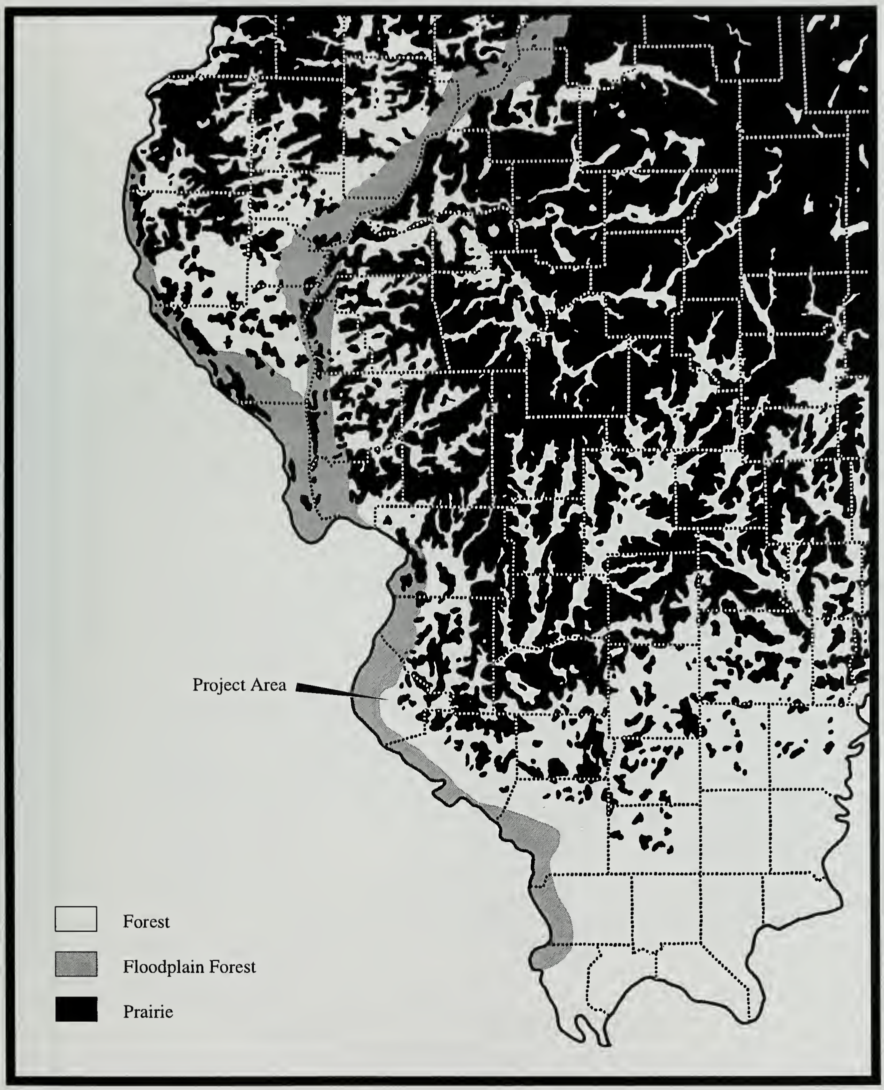

Figure 2-3. Distribution of Major Plant Communities of Southwestern Illinois (after Anderson 1970).

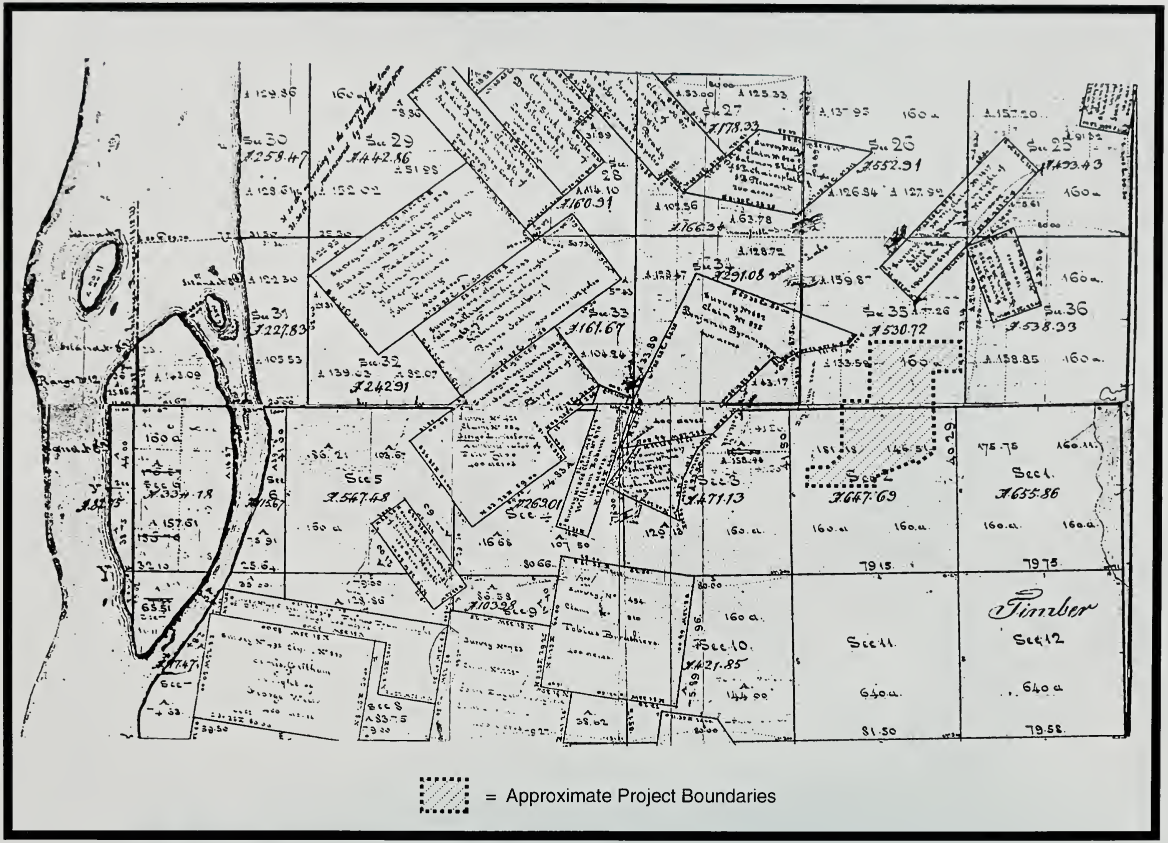

Figure 2-4. Distribution of Plant Communities in the Valmeyer Area Based on 1836 and 1840 GLO Survey Maps.

or transition zones between different habitats, would have been common. The aquatic-marsh habitat would have provided access to many fish species, amphibians, turtles, waterfowl, wading birds, and semiaquatic mammals including beaver, mink, muskrat, and river otter. Forest zones contained a number of mammal species, most importantly white-tailed deer, but also raccoon, wolf, fox, black bear, squirrels, opossum, and smaller rodents. Birds present would have included turkey, passenger pigeon, and a number of species of raptors and smaller birds. Finally, the prairies to the east and along the Mississippi River bottoms were inhabited by such species as badger, coyote, wolf, and smaller rodents along with box turtle and prairie chicken. Detailed modern inventories of fish species can be found in Pflieger (1975) and Smith (1979) and of mammals in Hoffmeister (1989).

Overview

The environmental setting of the Valmeyer relocation parcel is predictable in terms of accessibility to various natural resources. Its location provides access to a number of different environmental zones, each with a somewhat different suite of resources. Perhaps two of the more important zones would have been the Mississippi River floodplain and the upland forests. The floodplain provided access to fish, migratory waterfowl, and various aquatic plant species. The upland forests were important for their stands of nut-bearing trees and the presence of deer and other smaller mammals. Equally important were the drainages that led down to the Mississippi River floodplain, containing exposed outcrops of chert nodules that were used to make a variety of stone tools. Access to each of these resource zones would have been a factor in site location. Finally, one aspect of site location, a lesson learned during 1993, is that the project area provided a safe haven from the periodic flooding of the Mississippi River.

CHAPTER 3.
CULTURAL SETTING

Monroe County is located in one of the richest archaeological regions of North America. The wealth of the archaeological record in the American Bottom region has long been recognized in the archaeological community. The Native American communities in this area were described as early as the seventeenth century by European explorers, and archaeological commentary began early in the nineteenth century (Bushnell 1904, 1922; Fowler 1989). While much of the archaeological attention was focused on sites in Madison County to the north, significant Monroe County sites such as Lunsford-Pulcher also are noted by the nineteenth century (Fowler 1969). Sites from all major temporal periods defined for the Midwest (Griffin 1952, 1967, 1978; Stoltman 1978) have been identified in Monroe County, although most of the known sites date to the later prehistoric and historic periods. For a detailed discussion of the cultural chronology in this region, the reader is directed to several comprehensive overviews (Bareis and Porter 1984; Fowler 1989; Fowler and Hall 1978; Kelly 1990a, 1990b).

The wealth of data from the American Bottom region, much of which have been generated from projects conducted for compliance with historic preservation legislation, has been used to develop a detailed chronology for the American Bottom, particularly for the later prehistoric period. This chronology is presented in Figure 3-1.

To date, more than 900 sites in Monroe County have been recorded formally with the Illinois Archaeological Survey, representing continuous human occupation of the area for more than 10,000 years. A number of major reconnaissance surveys (e.g., Ahler 1984; Conrad 1966; Iseminger and McNerney 1973; Kelly et al. 1979; Kuttruff 1969; Linder et al. 1975) have been conducted as have excavations (e.g., Esarey and Moffat 1980; Finney 1985; Fortier, Emerson, and Finney 1984; Fowler 1959; Kuttruff 1972). Each of the cultural periods recognized in the region is briefly summarized below.

Paleoindian Period

The Paleoindian period, defined is southwestern Illinois as pre-10,500 B.P., is the earliest known occupation in the Midwest. The adaptive patterns identified in this region resemble those of other areas of North America. During the terminal Pleistocene, subsistence was based on a mobile pattern of hunting and gathering with apparent concentration on large game animals. Site occupations are believed to have been of limited duration, resulting in an archaeological record consisting of small, shallow lithic scatters. Few in situ Paleoindian remains have been identified in this part of Illinois, and most research has been limited to surface scatters of lithics. Paleoindian sites in southwest Illinois tend to be surface scatters located in the uplands and on old river terraces, although a few cave and rockshelter sites also are known (Webb et al. 1989). Based on the analysis of numerous Paleoindian projectile point finds, Munson (1985) has proposed a tripartite division of the Paleoindian period. The earliest portion of this period, Clovis, is dated between 12,000 and 11,000 B.P. and is followed by Folsom/Cumberland, 11,000–10,500 B.P., and finally by Plano, 11,000–9000 B.P. In general, Paleoindian sites in Illinois are found in upland settings and are multicomponent. Ten sites with Paleoindian components are recorded for Monroe County (Wiant 1993). Two recently excavated sites in Jersey County, Illinois, and the Kimmswick site in Jefferson County, Missouri, provide detailed data on Clovis-age occupations in this portion of the Mississippi River valley. The Bostrom site, located on a narrow upland ridge spur in Jersey County, Illinois, represents perhaps the only in situ Clovis site in southwest Illinois. The excavations at Bostrom revealed two shallow basins, likely hearths, a large bathtub-shaped pit, and a concentration of sand-

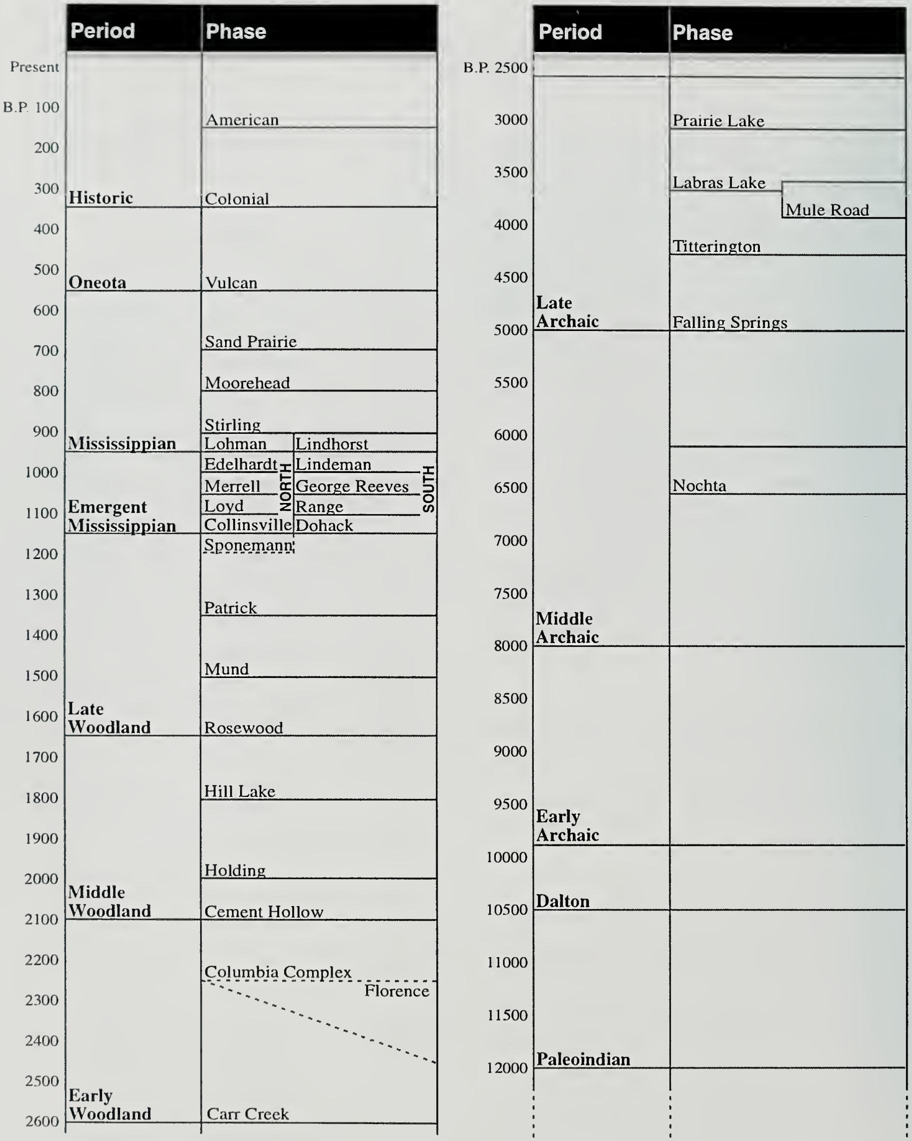

Figure 3-1. American Bottom Chronology (after Bareis and Porter 1984; Fortier 1996).

stone. Associated with these features were two Clovis point bases, 39 fluted bifaces, diagnostic Clovis prismatic blades, and end and side scrapers. Significantly, more than 50 percent of the lithic assemblage is composed of nonlocal materials. The Ready/Lincoln Hills site, also located in Jersey County, is a repeatedly occupied Clovis lithic workshop. Situated on a high plateau between two small streams, the site produced 223 fluted bifaces along with a large number of broken preforms and lithic debitage (Tankersley and Morrow 1993). Kimmswick, located approximately 32 km south of St. Louis, is located at the base of a bluff in a small tributary valley within a karstic setting. Clovis projectile points have been recovered from the site in direct association with Pleistocene fauna including mastodon, peccary, and ground sloth. Additional faunal remains from the site include white-tailed deer, fish, reptiles, and small mammals (Graham et al. 1981). The Bostrom, Ready/Lincoln Hills and Kimmswick sites indicate that at least three site types were utilized in southwest Illinois during the Paleoindian period: kill sites, represented by Kimmswick; habitation sites such as Bostrom; and lithic workshops such as Ready/Lincoln Hills (Tankersley and Morrow 1993). Human populations were highly mobile during the Paleoindian period as reflected in exotic cherts and flints recovered from Paleoindian sites. This high degree of mobility is likely a result of the focus on large, herding mammals as the primary subsistence target, although the absence of subsistence remains from Paleoindian sites in Illinois makes this a less than certain assumption.

A transitional Paleoindian/Early Archaic complex, Dalton, has been defined in the midcontinent that dates from 10,500 to 9850 B.P. (Goodyear 1974; Morse and Morse 1983). The differences between preceding Paleoindian and Dalton occupations are slight, and have been based on the presence of the Dalton projectile point and the Dalton adze as diagnostic of the latter. In general, the lithic assemblages, excluding projectile points, are nearly identical between Paleoindian and Dalton sites, and both periods are characterized by generalized lithic tool assemblages (Goodyear 1982; Morse 1976). Groups during this period are believed to have been the first to adapt to postglacial environmental conditions (Muller 1986). A Dalton phase component has been identified at the Nochta site, 11MS128, located on the American Bottom floodplain in Madison County, Illinois (Higgins 1990). At Nochta, Dalton projectile points and adzes were recovered along with other diagnostic Dalton lithic artifacts such as large flake knives and steeply retouched end scrapers. Three features, two pits and a large hearth, contained Dalton diagnostics, and nearby features without diagnostic artifacts also may be associated with the undated Dalton component at the site. The Dalton occupation at Nochta is interpreted as representing a residential base camp on the basis of a range of tool types including Dalton adzes and projectile points, knives, and a variety of flake tools (Higgins 1990:52–57).

Archaic Period

The Early (9900–8000 B.P.), Middle (8000–5000 B.P.), and Late (5000–2600 B.P.) Archaic periods in the American Bottom region include a span of time noted for substantial climatic, environmental, and cultural changes. Recognized time-transgressive trends during the nearly 7,000-year Archaic period include increased population density in certain environmental settings, evidence of growing sedentism and intensified subsistence activities, growing horticultural activities involving several native plant taxa, increasing evidence for growing gender and status differentiation, development of long-distance, interregional exchange, and regional divergence of material culture (Brown 1985; Brown and Vierra 1983; Jefferies 1995).

Early Archaic Period

Sites dating to the Early Archaic are similar in nature to those of the Paleoindian period, reflecting a system of regular movement from one area to

another (Muller 1986). These temporary encampments have been termed base camps and hunting camps, which, in Binford's (1980) settlement classification scheme, define a residentially mobile pattern where a group has no fixed residence, but shifts camp frequently in pursuit of subsistence and material resources. Ahler (1984) argues that the Early Archaic settlement strategy in the American Bottom region was one based on residential mobility, which Binford (1980) associates with foraging strategies. Early Archaic period sites, as recognized by diagnostic projectile points, are well-represented in surface collections from southwest Illinois, particularly from upland locations. Projectile points characteristic of this period in the midcontinent include Agate Basin, Kirk Cluster, Hardin Barbed Cluster, MacCorkle Stemmed, and Thebes Cluster varieties (Justice 1987; Vickery and Litfin 1994). Other tools associated with these points include blades, chipped-stone adzes, various scrapers, drills, and gravers; no ground or polished tools have been recovered. There is little evidence for specialized hunting of particular game species or concentration on specific habitats. The Early Archaic adaptation has been characterized as generalized in that a wide range of potential subsistence resources was used (Meltzer and Smith 1986). This period probably reflects the initiation of adaptive strategies to post-glacial environments that were beginning to take on a more modern character.

Two sites in the American Bottom region, Modoc Rock Shelter, 11R5, and the Nochta site, 11MS128, contain Early Archaic components that have been the subject of archaeological investigation. At Modoc, which is located at the base of the eastern Mississippi River valley bluffs in Randolph County, Illinois, the earliest evidence of human habitation dates to the Early Archaic period; several radiocarbon age determinations predate 9000 B.P. (Fowler 1959; Styles et al. 1983). Artifacts from these early occupations include lanceolate and stemmed projectile points, chert choppers, scrapers, and perforators. Subsistence remains from the Early Archaic occupations at the site include both floral and faunal remains. The floral assemblage suggests a foraging pattern of exploitation that included nuts, primarily black walnut and pecan, and other plants represented by the presence of a few seeds. Faunal remains recovered from Early Archaic strata at Modoc represent the exploitation of numerous small mammal species rather than large mammals such as deer, and both backwater and main channel fish taxa. Overall, the Early Archaic remains are interpreted as the result of successive, short-term use of the rockshelter (Styles et al. 1983). At Nochta, located in the American Bottom, a large number of diagnostic Early Archaic projectile point types that date between 10,500 and 8,000 B.P. have been recovered These projectile points including Agate Basin, Kirk, St. Albans, Thebes, Hardin Barbed, MacCorkle, and other Early Archaic types, were not associated with distinct cultural features. The lack of good context for these finds and no associated Early Archaic radiocarbon dates at Nochta do not permit a more detailed examination of Early Archaic presence and adaptation in the American Bottom to be formulated at this time.

Middle Archaic Period

Environmental conditions during the Middle Archaic period, 8000–5000 B.P., became similar to those of today following the close of the Hypsithermal Interval at about 6000 B.P. This period of climatic warming and drying led to the extension of the prairie/forest ecotone eastward into Illinois between 8000 and 6000 B.P., followed by an expansion of forest cover after about 4000 B.P. Other effects attributed to the Hypsithermal Interval include increased aggradation of major river valleys, development of extensive colluvial fans at the valley margins resulting from increased rates of upland erosion, development of backwater lake and swamp habitats within the major river valleys, and the possible degradation of interfluvial vegetative cover in upland areas (Asch et al. 1972; Bettis and Hajic 1995; Deevey and Flint 1957; Holloway and Bryant 1985). The Middle Archaic represents an important period of cultural adaptation and transition between

the preceding Early Archaic period, characterized by highly mobile hunting and gathering adaptations, and the succeeding Late Archaic period, within which increasingly sedentary lifeways become apparent throughout portions of the Midwest. Middle Archaic sites are generally larger and more intensively occupied than Early Archaic sites, and site locational data suggest a shift to river valleys from upland settings, possibly a response to the drier conditions of the Hypsithermal (Cobb and Jefferies 1982; Emerson et al. 1986). These sites also reveal an increasing focus on a narrower spectrum of locally available resources and diversification of tool types including ground and polished stone tools. Diagnostic Middle Archaic projectile point styles include side-notched, stemmed, and corner-notched forms, although the side-notched varieties predominate. Named Middle Archaic side-notched points include types such as Godar, Big Sandy, Brannon, Faulkner, and Matanzas. Interpretations of the Middle Archaic period in the American Bottom region are based almost exclusively on the investigations conducted at Modoc Rock Shelter and Nochta, each of which has been discussed above in relation to their Early Archaic components.

The Middle Archaic occupations at Modoc Rock Shelter date between 8000 and 5000 B.P. and include a variety of features including pits, post molds, and hearths. The lithic assemblage contains a broad variety of formal tools and a high frequency of bifacial thinning flakes, suggesting tool maintenance and curation were undertaken during the period of site use. The floral assemblage includes a high percentage of hickory nutshell and a low incidence of seeds in contrast to the Early Archaic focus on black walnut and pecan. Faunal remains again indicate a focus on small mammals and a strong emphasis on aquatic species including fish, crayfish, and mussels. During the Middle Archaic period, Modoc is interpreted as a series of base camps that were occupied for longer periods than during the Early Archaic (Ahler 1993; Fowler 1959; Styles et al. 1983). The use of Modoc as a base camp during the Middle Archaic may be an indication of the desire to locate base settlements in physiographic settings with ready access to a variety of distinct habitats including aquatic and riparian floodplain zones, valley margin forests, and upland forest/prairie ecotone habitats.

The Middle Archaic occupation at Nochta represents a repeatedly occupied field camp for a logistically organized group of collectors (Higgins 1990). Radiocarbon dates from four features range between 6890 and 6180 B.P. The Middle Archaic component is associated with 220 features, which include single and multiple-zoned basins, flat-bottomed pits, a bell-shaped pit, rock clusters, and a large rectangular basin interpreted as a residential structure. The lithic assemblage is composed primarily of small, side-notched points classified as Robinson and lacks other types of bifacial tools. Expedient flake tools, early-stage lithic reduction debris, cobble tools, and wedges (*pièces ésquillées*) are common in the lithic assemblage. The subsistence data from the site are limited to botanical remains, which are dominated by hickory nutshell, with some acorn and walnut present in small amounts. The Nochta site is believed to have functioned within a logistically organized settlement system as a field camp from which a relatively restricted range of activities was undertaken during the Middle Archaic. The Nochta Middle Archaic component is viewed as an equivalent to the Helton phase as defined in the lower Illinois River valley (Brown and Vierra 1983).

Late Archaic Period

Late Archaic sites are more numerous and better documented in the American Bottom region than those of preceding periods. This period, dating between 5000 and 2600 B.P., has the first documented evidence for extensive and intensive occupation of the American Bottom floodplain (Emerson et al. 1986). In general, Late Archaic sites in the region show evidence of increased reliance on cultivated crops including both squash and bottle gourd, intensive collection of nut crops and mussels,

growing indications of social stratification, and participation in interregional exchange networks. These patterns are similar to those identified elsewhere in the eastern United States and have been characterized as the apex of the so-called primary forest efficiency model discussed by Caldwell (1958; see also Jefferies 1995; Winters 1974).

At present, four site types are recognized in the American Bottom region for the Late Archaic period—base locales, base camps, residential extractive camps, and extractive loci—which are defined on the basis of sedentary versus mobile settlement, size of site area, and diversity of the artifact assemblage (Emerson et al. 1986). Base locales are large sites containing a high density of artifacts of diverse function. These sites are believed to have been the result of long-term occupation of the locality by a large population. Base locales may be further subdivided into a number of specialized activity areas that include ritual/ceremonial areas, habitation areas, activity or specialized task areas, and possibly burial areas. This site type represents the most intense Archaic period occupation on the American Bottom. The next largest site in this typology is the base camp, characterized by a diverse assemblage, medium to large site area, and evidence for a variety of domestic activities that are undertaken for a substantial portion of the year. Residential extractive camps are smaller sites with evidence for specialized activities within a larger assemblage. The specialized nature of this site type may be reflected in the preponderance of a particular feature or artifact type. Such sites are interpreted to be the result of short duration occupations focused on nut processing, fishing, or other specialized tasks. The smallest site type, the extractive loci, are characterized by very limited artifact assemblages and general lack of structural features such as pits. These sites likely were used by specific portions of a larger population for limited periods of time (Emerson et al. 1986:250–251).

Five phases have been defined for the Late Archaic period in the American Bottom. The Falling Springs phase, 5000–4300 B.P., is defined by the presence of slightly side-notched projectile point forms similar to Matanzas points in the lower Illinois River valley. The McLean site, 11S640, located on the bluff crest above the American Bottom in St. Clair County, Illinois, represents the only excavated Falling Springs site in the region. At McLean, a large number of morphologically similar pit features were exposed and excavated along the crest of a north/south-trending ridge. Faunal materials were absent from the pits, and the floral assemblage is composed almost entirely of nut shell and wood charcoal. Lithic tools include expanding-stemmed projectile points and a large number of hafted scrapers manufactured on reworked projectile points. The site has been interpreted as representing a specialized nutting camp (McElrath 1986; McElrath et al. 1984) and would be categorized as a residential extractive camp using the typology of Emerson et al. (1986).

Following the Falling Springs phase is the Titterington phase, 4200–3700 B.P., which has been recognized in Illinois and Missouri by a complex of distinctive hafted bifaces, including Etley, Wadlow, and Sedalia types, and a similarly distinctive chert gouge (Clear Creek gouge) (Cook 1986; McElrath 1993). The Go-Kart North site (11MO552N) in Monroe County is the only major Titterington phase site excavated in the American Bottom (Fortier 1984). The Go-Kart North site is situated on the outer cutbank of the Hill Lake meander scar, which was an active channel of the Mississippi River during the period of occupation at the site. The cultural features at Go-Kart North have been divided into four spatially discrete occupational units, each of which is in turn subdivided into identifiable pit clusters. The subdivisions are interpreted as representing socially defined groups, possible extended families, or task-specific work groups. The overall structure of the site, however, suggests that its final form reflects the presence of a number of extended family groups spread out in linear fashion along the river channel rather than a planned community pattern. Subsistence data are poorly represented at

Go-Kart North, but nutshell, primarily hickory and walnut, and at least 10 taxa of seeds are present along with deer, fish, and bird remains. The recovery of numerous grinding stones, however, suggests that plant foods were important components of the diet. The Go-Kart North site is interpreted as a base camp for a population of Late Archaic residents on the basis of the diverse tool assemblage and available subsistence data (Fortier 1984; McElrath et al. 1984).

The Labras Lake phase, 3700–3200 B.P., follows the Titterington phase. The Labras Lake phase is characterized by small, side-notched projectile points that resemble those recovered from Riverton culture sites in the Wabash River drainage (Winters 1969). The Labras Lake site (11S299), located on the American Bottom floodplain along the margin of Labras Lake, revealed the initial evidence for Archaic period structures in the American Bottom. Another characteristic of the Labras Lake phase occupation at the site is the presence of a number of exotic materials such as galena, hematite, and nonlocal cherts. The eight structures identified in the Labras Lake component are located in two distinct occupation areas dating to the Late Archaic. Each of these occupation areas contained one large structure with internal features and dark organic staining and smaller structures. Subsistence data indicate that nuts provided a major portion of the plant foods consumed at the site. Bone preservation was poor, but deer and elk were present in addition to a large amount of unidentified bone fragments. The Labras Lake site is thought to represent a permanent or semipermanent year-round occupation and has been characterized as an example of a base locale within the model proposed by Emerson et al. (1986). The diverse tool assemblage, ready access to rich floodplain habitats, and the lack of large Late Archaic bluff crest site nearby are all offered as support for this interpretation (McElrath 1984).

The terminal Late Archaic phase defined for the American Bottom is the Prairie Lake phase, 3200–2600 B.P. Diagnostic artifacts of this phase include straight to moderately expanding-stemmed points with barbs which are classified as Dyroff and Mo-Pac points (McElrath et al. 1984). Excavated Prairie Lake phase components on the American Bottom are present at the Missouri Pacific #2 site (11S46) (McElrath and Fortier 1983), the Dyroff-Levin site (11S463) (Emerson 1984), and the Range site (11S47) (Kelly et al. 1987) . At the Missouri Pacific #2 site located along the Prairie Lake meander scar, 845 subsurface features dating to the Late Archaic were excavated including 599 pits, 196 cultural stains, two possible structures, a tool cache, and several post molds. The possible structures include an oval pattern of post molds, 11 m in length, and a shallow rectangular basin that is 2.5-x-1.5 m in extent. At Dyroff-Levin, 318 features were assigned to the Late Archaic period including 250 pits. Few artifacts were associated with the Dyroff-Levin pit clusters, making their functions difficult to infer. Machine stripping of the plow zone and subsequent excavation of cultural features at both Missouri Pacific #2 and Dyroff-Levin revealed only a portion of the site area represented at these two sites. The intensity of Late Archaic occupation along the Prairie Lake meander scar with numerous overlapping and superimposed features makes characterization of the settlement type difficult at these sites. It is significant, however, that much of the Prairie Lake meander margins were the focus of Late Archaic period settlement. As with the preceding Late Archaic phases, subsistence data are limited to mainly nutshell with deer, fish, and bird elements represented in the poorly preserved faunal assemblage.

A recently defined Late Archaic phase, the Mule Road phase, has been proposed by McElrath (1993) as dating between 3900 and 3550 B.P. The Mule Road phase has been identified at the George Reeves site, 11S650, on the basis of distinctive large-bladed, contracting-stemmed bifaces that previously had been assigned to the Titterington phase. The Mule Road phase artifact assemblage, especially the contracting-stemmed Mule Road projectile points, is similar to Ledbetter phase

materials defined in Tennessee and is currently viewed as representing the migration of a population or populations into the American Bottom from the south via the Mississippi River valley from an ultimate source in the lower Tennessee River valley (McElrath 1993:154). At present little else can be said to further define the Mule Road phase in the American Bottom.

Woodland Period

The Early (2600–2100 B.P.), Middle (2100–1650 B.P.), and Late (1650–1150 B.P.) Woodland periods mark a significant increase in cultural diversification in the American Bottom region. The appearance of thick, grit-tempered ceramics in the Early Woodland and later appearance of specific ceramic attributes are the principal criteria by which these periods are defined. The trends first identified during the Late Archaic—emerging social stratification, population increase, economic complexity, technological innovation, development of exchange networks, and agricultural intensification—continued and intensified. However, the initial Early and Middle Woodland occupations of the American Bottom are generally small, short-term camps with limited artifact assemblages that contrast sharply with the extensive and intensive sites of the preceding Late Archaic period. In addition, the Early and Middle Woodland sites are located along low marsh and lake edges and on sandy floodplain ridges. No longer are the more stable clay meander scar banks or talus slope settings the focus of occupation as they were in the Late Archaic period (Fortier, Emerson, and Finney 1984).

Early Woodland Period

The Early Woodland period in the American Bottom is distinguished from the preceding Late Archaic by the addition of thick, grit-tempered ceramics and weak-shouldered Kramer projectile points to the material inventory and, as mentioned above, by noticeable shifts in settlement location and organization away from the Late Archaic pattern. Three phases have been recognized in the American Bottom for the Early Woodland. Carr Creek is the initial phase, dating between 2600 and 2300 B.P., and it is characterized by Marion Thick pottery and Kramer projectile points. Carr Creek phase sites are well-represented in northern Monroe County including the Jean Rita, Carbon Dioxide (11MO594), and Carbon Monoxide (11MO593) sites (Linder 1974; Finney 1985; Fortier 1985). Carr Creek phase occupations are considered to be an American Bottom representation of the Marion phase as defined in the lower Illinois River valley (Emerson and Fortier 1986). The distribution of Carr Creek phase sites appears to reach its southern limit in the American Bottom region in northern Monroe County (Fortier, Emerson, and Finney 1984). At the Jean Rita site, artifacts were recovered from a midden deposit within a habitation area estimated at 10,800 m^2 located along a meander ridge in a former floodplain marsh or lake setting. Lithic debris included the aforementioned Kramer points, crude knives and scrapers, and several lamellar flakes. Marion Thick ceramic vessels, including one nearly complete pot, were recovered as well. Few details regarding the settlement system or site placement are available at present for the Carr Creek phase, but in general, the sites of this period are situated along low marsh or lake margins. Upland sites dating to this period are known from the east of the main valley where they are located in aquatic or riverine habitats (Emerson and Fortier 1986).

This phase is followed by the Florence phase as defined from the Florence Street site, 11S458 (Emerson et al. 1983). Although Florence phase sites have not been identified in Monroe County, they have been reported to the north. At the Florence Street site, 89 cultural features were associated with the Early Woodland Florence phase occupation including a large, oval post-and-basin structure with internal hearths. This structure is believed to be a winter dwelling. Numerous pits, rock concentra-

tions, and fired areas were recognized and subdivided into 11 discrete activity areas within the excavated area. Subsistence remains, while of limited quantity, are believed to support the interpretation of a winter season of occupation for the Florence Street site. Ceramic vessels are conoidal to subconoidal and occasionally have flattened angular bases. Decorative motifs include cordmarking and zoned decoration, and the general morphological and stylistic attributes of the ceramic vessels indicate similarity with Peisker phase ceramics from the lower Illinois River valley and with other Early Woodland ceramic complexes common in the lower Mississippi River valley and mid-South regions. Projectile points associated with the Florence phase in the American Bottom are broad to narrow with contracting stems and are accompanied by large, contracting stem Goose Lake knives and humpback scrapers (Emerson and Fortier 1986). The Florence phase ceramic assemblage consists of primarily grog-tempered jars with straight, constricting, or flared necks. Decoration consists of zones of punctations, smoothed-over cordmarking, or fingernail gouges in a horizontal band below the rim. Vessel bodies are typically cordmarked.

The terminal Early Woodland phase, the Columbia Complex, dates between 2300 and 2100 B.P. This phase is marked by plain and cordmarked grog-tempered ceramics (Fortier 1985). The end of the Columbia complex does not appear to be ancestral to the succeeding Middle Woodland Cement Hollow phase occupation of the American Bottom, which represents the introduction of Havana tradition traits to this portion of the Mississippi River valley. The Columbia Complex ceramic assemblage is described as similar to that of the more southerly Crab Orchard tradition, but, importantly, is most closely related to Florence phase materials. The lithic assemblage compares favorably with the Florence material, and the Goose Lake knives and humpback scrapers are common to both assemblages.

The Early Woodland period in the American Bottom is one in which the region is, in effect, a contact zone between cultural and ceramic traditions that have their origins in the mid-South and those such as the Marion culture in regions to the north. The exact temporal range of the Early Woodland phases and components is far from clear, and the potential exists for substantial overlap and coexistence between these cultural expressions. The apparent similarity and continuity in adaptations to the American Bottom floodplain, however, may be more significant than the stylistic differences (Emerson and Fortier 1986).

Middle Woodland Period

The Middle Woodland period in southwest Illinois shows the intensification of earlier trends in population, sedentism, and horticulture. Also seen is an increased investment in mortuary facilities such as burial mounds and growing elaboration of ritual and ceremony within populations participating in the Hopewell Interaction Sphere (Struever 1964), a pan-regional exchange and interaction network. This period is not as well-defined in the American Bottom as in other areas, however, and mortuary data are entirely lacking. Only a few sites with subsurface features are known, and there is little evidence for burial mounds (Fortier et al. 1989). Three phases have been defined for the Middle Woodland period in the American Bottom.

The earliest Middle Woodland phase, Cement Hollow, dates between 2100 and 2050 B.P. and marks the introduction of Havana materials in the region. The Cement Hollow phase sites are located throughout the American Bottom and are distinguishable ceramically by the presence of decorative motifs involving zoned treatments such as punctation, dentate and ovoid stamping, cordmarking, and fabric impression. The Mund site, 11S435, represents the only excavated Cement Hollow phase site in the American Bottom (Fortier et al. 1983; Fortier, Emerson, and Finney 1984). At Mund, two discrete area of Cement Hollow phase features were exposed, consisting of basin-shaped, flat-bottomed, and bell-shaped pits. Lithic artifacts associated with

this phase include Waubesa and Manker projectile points along with a variety of cobble tools such as hammerstones and sandstone abraders. Subsistence activities are geared toward the exploitation of a variety of floodplain plant and animal resources including nuts, fruits, deer, fish, and birds.

The succeeding Holding phase, 2050–1850 B.P., represents the initial expression of Middle Woodland Hopewell in the American Bottom. Hopewellian Interaction Sphere goods, including copper, obsidian, galena, and mica, are present in the Holding phase. Also present is a blade industry, various Hopewell ceramic types, and nonlocal cherts, all of which further reflect the participation of American Bottom populations in widespread trade and interaction at this time. The Holding site, 11MS118, represents the only excavated Holding phase site in the American Bottom (Fortier et al. 1989). The Middle Woodland component at Holding includes the remains of seven post-and-basin structures, 143 trash-filled pits, and a number of post molds. The site is viewed as a hamlet composed of several households that was organized around a central, open courtyard. Two other nearby sites, Esterlein (11MS598) and Fournie (11MS590), also have Middle Woodland components and may be functionally related to the Holding site occupations. While Hopewell Interaction Sphere materials are present, their limited quantity suggests that Holding was an egalitarian horticultural hamlet. Subsistence remains indicate the cultivation of a number of native starchy-seeded plants along with squash. Significantly, recent accelerator mass spectrometry (AMS) dating has confirmed the presence of maize at the site during the Holding phase. While present in small amounts, the maize may have been used in ritual or ceremonial contexts during the Middle Woodland period as it is not a major subsistence item in the American Bottom until at least A.D. 750 (Riley and Walz 1992; Riley et al. 1994).

The terminal Middle Woodland phase in the American Bottom is the Hill Lake phase, 1850–1700 B.P., characterized by ceramics similar to Pike-Baehr assemblages known for the Illinois River valley, and an apparent cessation of participation in the Hopewell Interaction Sphere in terms of long-distance exchange in exotic materials. Hill Lake phase adaptations to the local environment are poorly understood, and their relation to those of the preceding Hopewellian occupation of the American Bottom are unknown.

Late Woodland Period

The Late Woodland period, while exhibiting marked differences in ceramic and lithic assemblages from the preceding Middle Woodland period, indicates a considerable degree of continuity in adaptation to the floodplain environments of the American Bottom. The importance of long-distance trade networks decreased as that of more localized social and exchange networks was strengthened (Braun 1977). Technological innovations during the Late Woodland may have included the introduction of the bow and arrow (Fowler and Hall 1978). Four phases have been defined for the Late Woodland period in the American Bottom. The initial phase, Rosewood, dates between 1650 and 1500 B.P. This phase is distinguished by ceramics that lack most characteristics of the preceding Middle Woodland period. Only lip stamping, noding, and punctation continue as decorative treatments from the previous period. Rosewood phase vessels are limited to cordmarked jars with subconoidal bases. Sites in Monroe County with Rosewood components include Carbon Dioxide, Leingang (11MO772), and George Reeves (11MO650) (Finney 1985; Kelly et al. 1984; McElrath and Finney 1987). Other Rosewood phase components are present at Dohack (11S642) (Stahl 1985), Mund (Kelly et al. 1984), and Alpha 1 and Alpha 7 (11S632 and 11S638).

The Rosewood phase is followed by the Mund phase, 1500–1350 B.P., characterized by ceramic assemblages with a relatively low frequency of decorated vessels. Diagnostic projectile points fall within the range of Lowe Flared Base or Steuben points (Justice 1987). Sites with excavated Mund

phase components include Mund, George Reeves, and Columbia Quarry (11S629) (Fortier et al. 1983; McElrath and Finney 1987; Bentz et al. 1988).

The final Late Woodland phase in the American bottom is the Patrick phase, 1350–1150 B.P. The Patrick phase also is recognized principally by ceramics with vessels that are cordmarked to the rim with interior lip impressions (Bareis and Porter 1984). It is during the Patrick phase that small, stemmed and subtriangular arrow points entered the lithic assemblage. Patrick phase sites have been identified at Cahokia, Range, Columbia Quarry, Schlemmer, Dohack, Fish Lake, Columbia Farms, Westpark, Hamil, Range, Fenaia, and VFW (Kelly 1990a).

Patrick phase communities have three basic types of structures. The most common structure is keyhole shaped but rectangular post structures, both with and without subterranean basins, are also present (Bentz et al. 1988). The post structures that lack subterranean basins appear to be unusual in their large size and infrequent occurrence and have been interpreted as ceremonial or communal structures rather than domicile structures (Fortier, Emerson, and Finney 1984; Kelly et al. 1987). Pit features, including earth ovens, storage pits, and refuse pits, are found at Patrick phase sites at a very high ratio compared to structures; one in even ten pit features is an earth oven (Kelly 1990b). Patrick communities include single family homesteads (1 or 2 structures), hamlets (3 to 10 structures), and villages (11 or more structures). Larger Patrick phase sites demonstrate a community pattern of structures surrounding a central feature or complex of features including posts and pits (Fortier, Emerson, and Finney 1984; Kelly et al. 1987:427). If this interpretation is correct, then there is evidence for the increased nucleation and organization around communal areas, a pattern which is ultimately associated with Mississippian sites.

In the northern portion of the American Bottom from (A.D. 700–750) the Sponemann phase is recognized as the terminal Late Woodland tradition (Fortier et al. 1991). The geographic distinction between the northern and southern portions of the American Bottom at the end of the Late Woodland signals the recognition of two distinct cultural traditions, Late Bluff and Pulcher, respectively, which continue into the subsequent Emergent Mississippian period.

In general, sites of the Late Woodland phases in the American Bottom region exhibit intensification in subsistence-related activities, principally evident in the growing importance of cultivated native plants, primarily starchy-seeded taxa, along with squash. Both tobacco and maize are present in small amounts during this period, but maize is still not considered to have been an important dietary component. Concomitant with the growing importance in cultivated plant foods is a decrease in the collection and use of wild foods such as nuts compared to preceding periods (Johannessen 1984, 1993). These changes indicate the successful integration of horticultural economies based on small-seeded annuals into the existing subsistence pattern of foraging and collecting floodplain and upland resources. Maize increases in frequency late in the Patrick phase, possibly as a result of its role in the social rather than strictly subsistence realm. Late Woodland faunal exploitation was geared toward fish, mammals, birds, and aquatic resources such as turtles (Kelly and Cross 1984). Habitation sites are primarily located on the floodplain, with more restricted, specialized sites being located in the upland margins to the east of the American Bottom.

Emergent Mississippian Period

Between the Late Woodland and Mississippian periods is the Emergent Mississippian period. This relatively brief period of time, between 1150 and 950 B.P., marks a time of rapid cultural change and diversification (Kelly 1987; Johannessen 1984, 1993). This period spans a time of rapid change and cultural diversification. Significant characteristics of

the Emergent Mississippian are the inclusion of maize as an important dietary crop, the use of new tempering agents for ceramics, higher frequency of vessels with incurved necks, higher frequency of Z-twist cordage, a decrease in structure size, a decrease in earth oven frequency, and an increase in the number of large deep pits (Kelly 1987). In addition, the ceramic assemblages are more diversified with the addition of stumpware. Madison County Shale paste vessels are found in the southern portion of the American Bottom, suggesting intraregional trade was taking place (Bareis and Porter 1984). As noted for the end of the Late Woodland, contemporaneous phases are recognized following a north/south geographic division in the American Bottom. In the northern portion of the American Bottom, the four phases are Collinsville, Loyd, Merrell, and Edelhardt, from oldest to youngest. In the southern portion of the American Bottom, the four phases are Dohack, Range, George Reeves, and Lindeman. These southern American Bottom Emergent Mississippian phases are summarized here as they are the most relevant to the Valmeyer relocation project area. A series of Late Woodland and Emergent Mississippian communities have been excavated at the Range site, a large, densely occupied site located along the western margin of Prairie Lake. The Emergent Mississippian Dohack phase occupations are distinguished from the preceding Late Woodland Patrick phase occupations by the sudden, widespread occurrence of maize in more than 70 percent of the analyzed features. Other distinctions noted for the Dohack phase in the southern American Bottom are the introduction of limestone as a ceramic tempering agent, the increase of bowls in the ceramic assemblage, and a decrease in the number of pits relative to structures. The characteristic Patrick phase keyhole structures also are replaced by smaller post-and-basin structures, and the density of structures at the Range site increases. Continuity between the Patrick and Dohack phases is seen in the presence of open plazas or courtyards that define the center of each settlement area. During the Range phase, settlements no longer were organized around a common open area, but were dispersed along the linear floodplain ridge. They have large structures with internal pits showing evidence of several stages of rebuilding. Such structures have been interpreted as an indication that corporate leaders now exerted a growing degree of influence over American Bottom populations (Kelly 1990a).

George Reeves is the next phase in the chronological sequence. This phase, dating between 1050 and 1000 B.P., is recognized in assemblages recovered from the George Reeves, Range, and Westpark sites (Bareis and Porter 1984; Kelly 1990b). Changes in ceramic decoration provide the best indications of this phase. In general, the ceramics are similar to the previous southern American Bottom phases except for a notable increase in the number of jars with undecorated necks. There is a continuation of the community plaza concept with the addition of smaller courtyards around the plaza. A majority of the George Reeves phase settlements are located in floodplain settings. The structures are rectangular and of a single-post-and-basin type. These structures may be associated with both interior and exterior pits. There is a marked decrease in the ratio of pits to structures, and very few earth ovens are present. It is during the George Reeves phase that the highest frequency of deep, straight-wall or expanded-wall pits are known. Houses are slightly larger (5.6 m^2) than previous Emergent Mississippian structures, and there are indications of more specialized structures.

The Lindeman phase, 1000–950 B.P., is the last Emergent Mississippian phase recognized in the southern American Bottom prior to the beginning of the Mississippian period. Lindeman phase components are known from the Marcus, Range, Schlemmer, George Reeves, Hamil, and Westpark sites (Bareis and Porter 1984; Berres 1984; Emerson and Jackson 1987; Kelly 1990b). The ceramic assemblage serves as the primary distinguishing characteristic of this phase. Ceramics continue to have cordmarking as the primary surface treatment, but there are more vessels with plain surfaces, and

some bowls and stumpware are entirely plain. Ceramic decoration includes a limited use of punctation, exterior lip notching, effigy lugs, and loop handles. New ceramic trends include a proliferation in a variety of red-filmed vessels including bowls, seed jars, and hooded water bottles. Some vessels have everted lips. A variety of nonlocal shell-tempered ceramics also occurs during this phase

In general, the Emergent Mississippian period witnessed the elaboration and consolidation of social power which was further reinforced by the presence of mound centers such as the Lunsford-Pulcher site, located south of Range. Subsistence data reveal that while maize had become widespread, it was added to the existing horticultural system rather than replacing it and that once maize was being used, changes in the subsistence base were subtle and reflect localized conditions. Johannessen (1993) views the observed alterations in ceramic assemblages (more bowls and plates) and the nature of food storage (on a household basis during the Mund phase, a communal basis during the George Reeves phase, and returning to a household basis during the Mississippian period) as reflecting changing ideas about the role of foods within an evolving sociopolitical structure. This perspective attempts to add dimensionality to the portrayal of subsistence behaviors and is cognizant of the fact that culture change involving subsistence is more than simply the need to satisfy dietary requirements.

Mississippian Period

The Mississippian period, dated between 950 and 500 B.P. in southwest Illinois, witnessed a continued increase in cultural complexity and population density. Maize was a staple of the diet, and a hierarchical settlement system emerged that was divided between large mound-and-temple town sites and dispersed agricultural hamlets. Long-distance exchange networks again became important, especially with regard to the acquisition and production of status goods. The largest site during the Mississippian period was Cahokia, which by the Stirling phase, 1050–1150 A.D., had reached its peak of influence and political power. Other mound sites such as Lunsford-Pulcher in northern Monroe County and the Mitchell site in the northern American Bottom were serving as gateway centers for the Cahokia-centered American Bottom polity.

In the southern American Bottom the Mississippian phases are Lindhorst, Stirling, Moorehead, and Sand Prairie. Beginning with the Stirling phase, a single set of phases is recognized for the southern and northern American Bottom. The initial Mississippian phase, Lindhorst, is dated between 950 and 900 B.P. Lindhorst phase sites include Carbon Dioxide, George Reeves, Range, and Lunsford-Pulcher (Finney 1985; Freimuth 1974; McElrath and Finney 1987; Kelly et al. 1989). This appears to be the time at which the major mound construction activity began at both Cahokia and Lunsford-Pulcher. With the development of mounds in the floodplain area at Cahokia and Lunsford-Pulcher, it appears that mortuary behavior took on new dimensions. While little evidence exists for mortuary behavior in habitation sites during this phase, separate burial areas have been examined. The best known burial area is Mound 72 from the Cahokia site. At Mound 72, evidence was uncovered for charnel houses, burial pits with grave offerings, human sacrifice, litter burials, and apparent status differences between the various burial treatments (Fowler 1974). Additional mound and nonmound burials probably belong to this phase but further analysis is needed to place them in the proper phase.

The Lindhorst phase is followed by the Stirling phase, 900–800 B.P. Sites with Stirling phase components include BBB Motor, Cahokia, DeMange, Julien, Lab Woofie, Labras Lake, Lily Lake, Lohmann, Mitchell, Range, Sandy Ridge Farm, Robert Schneider, and Turner (Emerson and Jackson 1984; Fortier 1985; Jackson 1990; Milner 1983, 1984a; Norris 1978; Porter 1977; Prentice and Mehrer 1981). In general, the Stirling phase is

thought to be the time when most of the construction of Monks Mound took place at Cahokia and use of palisades began in the American Bottom. This also appears to be the phase in which Cahokia's influence first extended outside the region. The distinctive Ramey Incised jar is first known from this phase.

The number and placement of Stirling phase sites suggest utilization of all environmental zones. The floodplain, in particular, witnessed a major increase in the construction of facilities in mound center sites. Evidence from the large mound centers suggests that residential areas were constructed and placed in accordance with an overall plan which included mounds. Possible house compounds are recognizable as spatially discrete groups of features along the slopes and crests of bottomland ridges. Individual structures are generally recognizable as discrete rectangular households with over 90 percent consisting of only a wall-trench construction style. Structures are known that deviate from the typical pattern, but most appear to have special functions

The Stirling phase is followed by the Moorehead phase, 800–700 B.P., which is recognized at the Julien, Mitchell, Powell Tract, and Turner sites (Milner 1983, 1984a; Porter 1977). This phase is thought to be the climax of Mississippian occupation in the American Bottom (Fowler and Hall 1975). Settlement patterns during this phase consist of the first through fourth line communities as described by Fowler (1974, 1978). These sites are concentrated in the floodplain, but the uplands also contribute to the lower-order communities. Communities still appear to be organized in relationship to the major mound centers such as Cahokia and Lunsford-Pulcher. Evidence for mortuary behavior includes the use of a charnel structure and mortuary areas located near the site rather than having the activities restricted to mound areas.

The Sand Prairie phase marks the last Mississippian phase defined in the American Bottom. This phase, dating between 700 and 550 B.P., marks a time thought to represent a significant decline in the overall importance of Cahokia (Milner 1986). Sites in the American Bottom recognized as having a Sand Prairie component include East St. Louis Stone Quarry, Florence Street, Julien, and Schlemmer (Emerson et al. 1983; Milner 1983, 1984a). Sand Prairie settlement patterns suggest a widely dispersed pattern in which households occur in small clusters on or near the crests of floodplain ridges. The houses themselves tend to be larger and more regularly square than previous Mississippian houses. All houses consist of four wall-trench style walls with one or more large, deep storage pits enclosed in the walls.

Mortuary activities continue to be less in evidence at floodplain mounds during the Sand Prairie phase. Greater evidence exists for activities taking place within the confines of individual communities. The placement of charnel structures and burials occurs more frequently on prominent ridges rather than in mounds.

The subsistence pattern noted for most Mississippian phases continues unchanged into the Sand Prairie phase. This pattern, characterized by an agricultural base consisting of both maize and a suite of native cultigens, hunting of a variety of birds and mammals, and fishing the backwater and main channel habitats, appears to have been readily adopted and then to have remained stable in its composition for much of the Mississippian period. It appears that the major subsistence changes are associated with the Emergent Mississippian period addition of maize to the existing agricultural system rather than the subsequent Mississippian phases.

Oneota Period

The final prehistoric cultural period defined for the American Bottom region is the Oneota, ranging between 550 and 350 B.P. Three division, the Bold Counselor phase and the Groves and Vulcan complexes, are recognized. The Oneota occupations in

the American Bottom represent the intrusion of more northerly cultural patterns. The Bold Counselor phase materials, recovered from the Sponemann site (Jackson et al. 1992), are similar to those recovered from the Crable site in the central Illinois River valley and represent a distinct variant of Oneota. The presence of the Bold Counselor phase occupations in the northern American Bottom at a time when the Cahokia polity was in decline may indicate the movement of Oneota populations into the area when the former Mississippian elites could no longer prevent the expansion of outside groups. The nature of Oneota settlement and adaptation in the American Bottom is currently not well-known, and the Groves Complex is based almost entirely on ceramic data. The relationships between the Bold Counselor phase and Groves complex are also not clear at present. Currently, little more of substance may be said regarding the Oneota presence in the American Bottom, due in part to the few excavated sites and their presence at the southern extent of Oneota cultural expression in the Midwest.

Historic Period

The Historic period in Illinois, postdating 350 B.P., recently has been divided into several phases. The earliest phase is the Colonial and Historic Indian phase. This is followed by the American Frontier, Rural and Urban Development, Urban and Industrial, and Recent phases. The Colonial and Historic Indian phase includes the initial European exploration and settlement in the American Bottom by the French, Spanish, and British. French-settled villages are common in the American Bottom. The American Frontier phase is defined as beginning with the arrival of George Rogers Clark to take control of the French settlement of Cahokia, not to be confused with the prehistoric mound center of the same name.

Summary

This brief overview of the major cultural chronological developments in the American Bottom region has summarized and encapsulated a large body of archaeological data and interpretation into its basic elements. As such, much of the variation within phases and between sites has not been explored. Similarly, such an overview highlights continuity in the occupations present on the American Bottom. While human presence stretches back into the late Paleoindian period, the successive occupations reflect dynamic population expansion and contraction into and out of the American Bottom rather than the continued development of a single cultural tradition. In general, however, successive occupations of the region illustrate growing complexity of social systems, increasing population density, growing sedentism and intensity of adaptation to the local environments, and varying degrees of interaction with adjacent regions. That such continued elaboration of prehistoric cultures can be traced through time in this region attests to the intensity and comprehensive treatment that the archaeological sites have received.

CHAPTER 4.
FIELD AND LABORATORY METHODS

A number of specialized research techniques were employed to locate and analyze the cultural resources present within the proposed Village of Valmeyer relocation area. Field, laboratory, and library research were all part of the Phase II NRHP evaluation and Phase III mitigation projects. The Phase II investigations included site definition and NRHP evaluation activities, conducted ultimately at 14 sites. The Phase III mitigation focused on complete data recovery from two sites: 11MO841 and 11MO891. Detailed descriptions of the methods that were employed during these phases of investigation are provided below. Any deviations from the general methods are discussed in the appropriate sections.

Phase II Field Methods

A stratified approach to the Phase II field investigations was used at Valmeyer, consisting of several different forms of data collection. These included pre-fieldwork research, a controlled surface collection, site plan mapping, mechanical stripping of the plow zone, and hand excavation of test units. Each of these methods is described here with specific modifications detailed within the individual site discussions. All of the methods implemented in this investigation are relatively standard for Phase II-level investigations in Illinois.

As discussed previously, the Phase I survey of the Valmeyer relocation parcel resulted in the identification of two sites and the relocation of three sites, including an expansion of the previously defined 11MO841 site area to almost 179 ha (Wells and Burns 1993). Wells and Burns (1993) concluded that Phase II NRHP evaluation of two sites within the Valmeyer relocation parcel should be undertaken. At the initiation of the Phase II project, a controlled surface collection of site areas was proposed to resolve two issues. First, the controlled surface collection was designed to identify areas with dense clusters of artifacts within the proposed expanded 11MO841 site area. Based on the controlled surface collection, artifact clusters were identified. Ultimately, it was decided to register each artifact cluster as a separate site. This was viewed as preferable both from management and archaeological perspectives. From a management perspective, areas devoid of intact archaeological deposits could be identified and construction then could proceed in those areas. Archaeologically, this approach would yield refined site data that are more useful in regional comparative analyses. Second, the artifact clusters would then be targeted for subsurface investigation in an attempt to determine whether intact archaeological deposits were present.

Prior to the initiation of fieldwork, the proposed road system was disced in order to increase surface visibility. A systematic grid was established along this road system which corresponds to many of the higher and broader landforms within the Valmeyer relocation area. In cases where flatter landforms were not crossed by the proposed road system, additional areas were disced to gain surface visibility for the controlled surface collection. Grid units were established as 10-x-10-m or 10-x-5-m units depending on the width of the disced area. All artifacts were collected within each grid unit while potentially diagnostic artifacts were piece-plotted. This approach resulted in 30 collection areas with a total of 1,554 grid units. In all, 143,150 m^2 were systematically surface collected. Based on analysis of the distribution of artifacts, 14 sites were defined. Posthole excavations were used in a few, mostly wooded, areas to identify sites or define site boundaries. The second aspect of the Phase II project was to conduct subsurface testing at these 14 sites in an attempt to determine whether intact subsurface deposits were present.

In all, 120 variably sized trenches were machine excavated to evaluate subsurface integrity at the 14

sites defined in the Valmeyer relocation parcel. In addition, three test units were hand excavated. Soils from the hand-excavated units were screened through 6.4-mm (¼-inch) mesh hardware cloth. The mechanical excavations were conducted using a backhoe with a smooth-mouth bucket, a track hoe, and a pan belly scraper. To excavate the machine trenches, the machine operator was instructed to remove the plow zone while personnel inspected the stripped areas for any unusual soil color changes or artifact concentrations. All machine-excavated units were excavated in this manner. Dark stains and artifact concentrations noted beneath the plow zone during excavations were treated as potential features and portions were hand excavated. Cultural features were located at three sites.

Each potential feature was shovel skimmed to define its limits in plan view. Plan drawings were made and one-half of each stain was hand excavated, either by shovel skimming or with a trowel. The resulting profile was drawn and photographed. In some instances the remaining portion then was excavated and flotation samples were collected. Upon completion of the investigations, each unit was backfilled and the ground surface recontoured to its original shape. All artifacts and flotation samples were returned to laboratory facilities at the University of Illinois Urbana-Champaign for analysis.

Phase III Field Methods

The Phase II recommendations resulted in additional fieldwork at two sites, 11MO841 and 11MO891. Intact features and midden deposits were present at two sites that would be impacted by construction associated with the relocation of Valmeyer (McGowan 1994). The investigative techniques used in the Phase III mitigation excavations were designed to recover as much data as possible from the intact deposits with which to address the research questions posed in the data recovery plan (Kreisa and McDowell 1994).

Initially, the plow zone was stripped from the previously defined site area of both 11MO841 and 11MO891 with a pan belly scraper to uncover cultural features. Each feature was mapped with a total station and incorporated into a site plan map. Plan maps of each feature were drawn prior to excavation. First, one-half of each feature was excavated, and all soil was screened through 6.4-mm mesh hardware cloth. After excavation of the first half was completed, a drawing at 1:10-cm or 1:20-cm scale was made of the feature profile. Soil colors were described using the Munsell Soil Color Chart (Kollmorgan Corporation 1988). The remaining half of the feature then was excavated in natural levels, when present, or as a unit. As per agreement with the Illinois Historic Preservation Agency, the fill from the second half of most features at 11MO891 was not screened. At least one 5-liter flotation sample was collected from each feature. When possible, additional samples were taken from features with multiple zones. Black-and-white photographs and color slides document each stage of excavation. Charcoal samples were collected for radiocarbon assay when present. Once all features in an area were excavated, additional stripping was conducted to search for more deeply buried features. When encountered, these features were excavated as described above.

Investigations of the sinkholes followed different strategies. One block was excavated within each sinkhole with a backhoe to expose a wall profile. The soil stratigraphy then was analyzed by a geomorphologist and archaeologist to determine whether archaeological material was deposited naturally through erosion or culturally by the prehistoric inhabitants of the site. Profiles and descriptions of the sinkholes were prepared by a geomorphologist. At 11MO891, a backhoe was used to remove colluvial/alluvial overburden from the sinkhole, and three 1-x-2-m test units were excavated in arbitrary 10-cm levels. Each level was screened

through 6.4-mm mesh hardware cloth. Five-liter flotation samples were collected from each level. Profile drawings of two walls of the completed units were drawn, and color slides and black-and-white photographs were taken.

Additional exceptions to this general excavation strategy were implemented at particular house and mortuary features at 11MO891. Given their large size, houses often were excavated in quarters rather than halves. Mortuary features were excavated in plan rather than halves in order to expose any skeletal elements fully in order to minimize destruction of the remains. The excavation of burials at 11MO891 was conducted in accord with the Illinois Human Skeletal Remains Protection Act (20 ILCS 3440; 17 IAC 4170). As in the main site areas, heavy machinery was used to remove the topsoil to expose pit outlines. Pit fill was easily distinguishable from surrounding soil, allowing the recognition of potential burial features without disturbing bone. Each machine pass was examined for pit features, limestone, and bone. These were flagged for excavation and the location mapped with the total station. A plan map of each feature was drawn, and plan-view photographs were taken before excavation. All burial excavations were supervised by a qualified skeletal analyst. Trowels and wooden picks were used to define the extent of bone within the feature limits and pedestal remains if possible. Sketch maps were drawn and photographs taken to document the size, position, and condition of burials in the field. Some elements were identified in the field before being removed because of their fragile condition. Upon completion of note taking, mapping, and photography, skeletal elements were gently removed and placed in foil packets labeled with site number, feature number, element, and side identification. Poorly preserved remains were removed in blocks of matrix; it was deemed more expedient and cautious to remove fragile elements in this manner and complete the excavation and stabilization of elements, if possible, in the laboratory. No stabilizing agents were used in the field. Flotation samples were taken from soil surrounding the skull or cranial fragments, the pelvic cavity, and from beneath the burial. These flotation samples can enable the recovery of isolated dental remains, small or fragmentary skeletal elements, fetal bones, botanical remains, and charcoal for radiometric dating.

Laboratory Methods

Upon completion of fieldwork, materials were brought to the PSAP laboratory facilities for processing and analysis. Inventories of recovered artifacts were made for each surface-collection unit, machine trench, feature, and test unit, and all artifacts were labeled with the site number, unit provenience, and, if applicable, cultural zone or level number. Permanent curation of the materials and documentation has been provided by the Illinois State Museum in Springfield.

The artifacts were processed according to standard laboratory procedures: washing, labeling, sorting, and analysis. After washing and labeling, artifacts first were sorted for analysis. Prehistoric artifacts recovered consisted of lithics, ceramics, burnt clay/daub, and botanical and faunal remains. The material analyses were undertaken to determine the temporal, cultural, and functional aspects of the site. The analytical methods used for each material class are described below. A few historic artifacts were recovered from both the Phase II and Phase III investigations. Since so few were recovered, they will be described individually in the appropriate chapters.

Lithic Analysis

Lithic artifacts were divided into three broad categories: tools, manufacturing debris, and miscellaneous lithic material. Tools include those made from both chipping techniques (e.g., projectile points and scrapers) and grinding and pecking techniques (e.g., celts and axes). Tools can be of formal manufacture, such as the examples listed above, or of incidental manufacture (e.g., hammer-

stones and pitted stones). Manufacturing debris usually is composed of the waste materials (e.g., cores, flakes, and block shatter) generated from the production of chipped-stone tools. Miscellaneous lithic material includes fire-cracked rock, limestone, unmodified and tested chert chunks and nodules, and ocher. Fire-cracked rock is unintentionally produced debris that results from alternating processes of heating and cooling (Taggert 1981; Zurel 1981). Limestone outcrops are found near the project area in the bluffs overlooking the Mississippi River valley. Limestone probably served a variety of purposes, such as for construction material or hearth stones. Unmodified or minimally flaked chunks and nodules of chert represent raw material collected and reserved for tool or flake production. Ocher is an iron oxide that most likely was used as pigment. Less common miscellaneous lithic materials are discussed in the lithic analysis sections. Definitions of the tool and debris categories represented in the artifact assemblage are provided below.

Debitage (flaking debris) categories comprise the majority of all the chipped-stone remains. These categories include block shatter, broken flakes, and whole flakes. The whole flake classification was used for items characterized by the presence of a bulb of percussion on the ventral surface and a striking platform. The whole flakes were further divided into primary, secondary, and tertiary flake types based on the amount of visible cortex present: ≥ 50 percent, < 50 percent and > 0 percent, and 0 percent, respectively. Secondary characteristics also were assessed. Primary flakes tend to have a pronounced bulb of percussion, secondary flakes have a less pronounced bulb, and tertiary flakes are generally smaller than the other two flake types and often have a reduced bulb of percussion. Broken flakes are debris items that lack a platform or bulb of percussion, or are too small to place accurately within the whole flake category. Block shatter has irregular shapes that lack flake and core characteristics. Bifacial thinning flakes have a distinct lip on their bulb of percussion, an angled striking platform, and distinctive negative flake scars on their dorsal surface (Whittaker 1994).

A distinctive type of bifacial thinning flake is the hoe flake, a frequently recovered artifact type at Emergent Mississippian and Mississippian sites. These are pieces of debitage that exhibit a highly reflective, very smooth polish on the dorsal surface. This polish forms as the result of repeated and prolonged contact with the soil. When well-developed, this polish dulls the edge of a hoe, at which point the edge must be resharpened. These flakes are the product of hoe-resharpening events.

The presence of bipolar cores indicate that a bipolar reduction strategy was employed. However, the recognition of bipolar chipping debris can be difficult. Few researchers agree on the definitions of bipolar debris categories (e.g., Hayden 1980; Jeske and Lurie 1993; Kobayashi 1975), or whether, in cases where both core and bipolar techniques were used, debris can consistently be separated into the two categories (Jeske and Lurie 1993). Based on a literature search and bipolar replication experiments in the laboratory, bipolar debitage in this analysis is defined as pieces with some or all or the following features: two bulbs of percussion; rectangular or triangular cross section; negative bulb of percussion; well-developed bulb of percussion with pronounced ripples or rings of percussion; and several small hinge-fracture scars and/or crushing at the distal edge of the flake.

Related to debitage are cores, the parent material from which flakes are removed. The majority of cores recovered are of three types well-documented in the American Bottom. Multidirectional cores are amorphous types resulting from random, unpatterned flaking from several striking platforms on a piece of raw material (Emerson 1980). Bipolar cores exhibit opposed striking platforms and flake scars originating from opposite ends of the core (Barham 1987; Binford and Quimby 1963). Typically, one end of a bipolar core is rested on a stone anvil during the reduction process, resulting in intensive

crushing and battering of the core (Emerson 1980). If the core is repositioned during this procedure, several edges will exhibit crushed and battered edges. Such damage was the most useful feature for recognizing these core types in the lithic assemblages. Plano-convex cores are pyramidal in cross section. These cores exhibit a single, flat striking platform from which flakes are struck (Emerson 1980).

Formally flaked stone tools initially were divided into unifacial and bifacial categories. Unifaces show evidence for retouch only on one surface. Bifaces demonstrate retouch on both their dorsal and ventral surfaces. When possible, each tool is assigned to a more detailed morphological-functional use category. Unifaces are most commonly classified as scrapers, with the particular type determined by the placement of the edge modification. Bifaces can be placed into a number of distinct categories. Among these are such items as projectile points, drills, knives, scrapers, and thick and thin bifaces. The most recognizable of the chipped-stone tools are projectile points. Projectile points are symmetrically thinned bifaces that show evidence of hafting. These items were examined in detail and compared with projectile point types known from the Midwest. They are particularly important for the placement of sites within a cultural and temporal context (Bell 1960; Justice 1987; Kelly et al. 1987; Montet-White 1968; Munson and Harn 1971; Perino 1971).

The other tool types are largely descriptive in nature. Perforators are typically small, narrow, often bifacial tools. Knives are larger, thin bifaces with a low edge angle to facilitate cutting while scrapers have a higher edge angle to facilitate scraping. Thick and thin bifaces are not finished tools but stages in tool manufacture. A thick biface is one that has been modified, is not a finished implement, and is in need of further modification. Typically, the thick biface can be modified into a number of different tool types (Bradley 1975). Thin bifaces are the result of further modification of thick bifaces. They also are not finished implements, but their morphology indicates that they can be further modified into only a single tool category (Bradley 1975). These items are also called blanks and preforms, with rough and thick bifaces designated blanks and thin bifaces as preforms.

In order to differentiate thick and thin bifaces objectively, a sample of 366 hafted and unhafted biface thickness values was derived from the reports from five sites in the American Bottom spanning the Late Archaic through Emergent Mississippian periods (Emerson 1980; Fortier, Finney, and Lacampagne 1984; McElrath 1986; McElrath and Finney 1987; McElrath and Fortier 1983). It is assumed, in part, that thin bifaces functioned as blanks for hafted tools. Hafted bifaces (n=257) have a median thickness value of .8 cm while the median value for unhafted bifaces (n=109) is 1.4 cm. Based on these values, 1.0 cm was chosen as the boundary to separate thin and thick biface categories. In these analyses, a thin biface is $<$1.0 cm thick, and thick bifaces are $\geq$1.0 cm thick. Additionally, rough bifaces retain some cortex and are also $\geq$1.0 cm thick.

In analyzing the chipped-stone tools and lithic debris, both core-reduction and bipolar models were followed (Collins 1975; see also Bradley 1975; Hayden 1980). Collins (1975) defines five stages of chipped-stone manufacture and use for the core-reduction model. These stages consist of acquisition of raw materials, core preparation-initial reduction, primary trimming, secondary trimming, and use-maintenance-modification. Each of these categories, called activity sets (except for raw material acquisition), is associated with waste by-products and objects that are further used or modified. Core preparation-initial reduction is a stage in which the core is shaped and flakes are detached. Suitable flakes may be retained and further used, with the core being discarded, or both can be retained for additional modification. End products of this stage are primary flakes, block shatter, discarded cores, and thick bifaces. The next stage, primary trimming, is used to shape the object. Flakes can be retouched into usable tools, or thick bifaces can be flaked into

a thin biface. These activities result in the production of secondary flakes, retouched flakes, thin bifaces, and items broken during manufacture. Following primary trimming is the secondary trimming of thin bifaces. This stage produces tertiary flakes, finished tools, and items broken during processing. Finally, the tools are used, maintained, and perhaps modified. Bifacial thinning flakes are the most important waste by-product of tool maintenance activities, although they also could be produced while thinning thick bifaces.

Following this model, the following considerations have been made in the analysis of lithic materials from the sites reported here. Cores, primary flakes, and block shatter are classified as evidence of initial-stage reduction activities. Secondary flakes, tertiary flakes, and thick and thin bifaces evidence later-stage reduction activities. Bifacial thinning flakes are indicative of tool-maintenance activities. Since broken flakes can be produced by a number of prehistoric and modern processes, they were not considered when characterizing the lithic tool production activities at sites.

Small chert cobbles are generally not well-suited for use in the direct hammer or core reduction technique described above, although a bipolar technique can be used to manipulate these items. When using a bipolar technique, the cobble is placed on an anvil and struck. This action yields bipolar debris and, eventually, a spent core. The flakes either can be discarded, used expediently, or further modified into tools. The bipolar technique also produces pitting in anvil stones due to the striking force used (Barham 1987; Binford and Quimby 1963; Hayden 1980).

Edge-wear analysis was undertaken on a selected sample of tools from 11MO891. A full discussion of the methods employed is presented in Chapter 5 in Volume 3 of this report.

The other class of lithic artifacts, ground-stone tools, consists of pecked and ground items generally made from metamorphic or igneous rock. Included in this category are items that are intentionally formed, such as celts and axes, and unintentionally formed, such as hammerstones, grinding stones, and pitted stones. Intentionally formed artifacts consist of items that were modified for a specific use. Unintentionally formed items have areas of pitting, battering, or smoothing caused by use. Definitions of the individual artifact categories are based on those used by other researchers in the American Bottom and adjacent regions (e.g., Brose 1970; McElrath 1986; McGimsey and Conner 1985, among others).

A variety of lithic raw materials were utilized at sites in the Valmeyer project area consisting of chert and other materials. Chert is a cryptocrystalline (or "microcrystalline") rock composed of mineral crystals too small to be viewed with the naked eye (Luedtke 1992). The other lithic materials include limestone, sandstone, ocher, and cobbles and water-worn pebbles of various igneous-metamorphic quartzites. Additional, but less common, miscellaneous lithic materials are discussed in Chapter 5 of this volume.

Important Chert Raw Materials in Southern Illinois. A number of chert types are present in Southern Illinois (Figure 4-1), and the Valmeyer Anticline is exposed in Dennis Hollow, which abuts the south edge of the project area. Here, the entire middle Mississippian Valmeyeran Series of geological deposits is visible (Odom et al. 1961). Chert is also present along the bluff face wherever bedrock is exposed. The Valmeyeran Series consists of alternating beds of siltstone, shale, and limestone. Chert is found as beds and nodules in the limestone deposits exposed in the anticline. Chert-bearing limestone formations at Valmeyer (from top of the sequence to bottom) include the St. Louis, Salem, Keokuk, Burlington, and Fern Glen limestones. Cherts found in these formations have been described elsewhere (e.g., Emerson 1980; Koldehoff 1985) and are summarized below. Other chert types found in the Valmeyer assemblages are St. Genevieve, Elco,

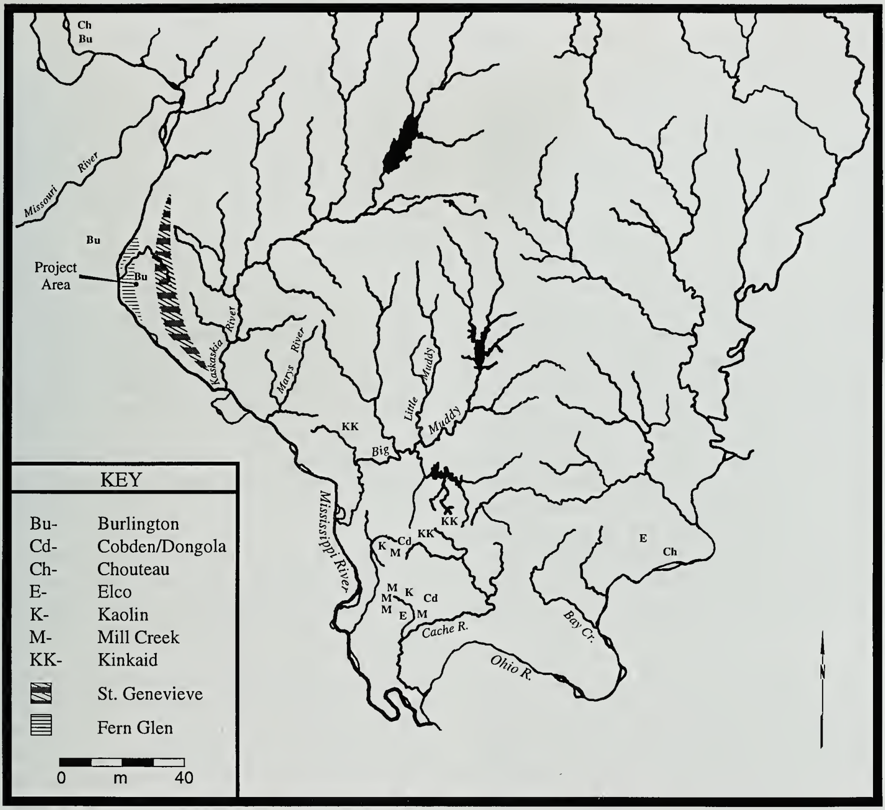

Figure 4-1. Locations of Known Chert Sources in Southern Illinois (after Koldehoff 1985).

Mill Creek, Kincaid, Kaolin, Cobden/Dongola, and Grover/Lafayette Gravel.

St. Louis chert, which occurs primarily as nodules, has a thick cortex (2–6 cm), is light to medium gray in color and is often streaked or mottled. Texturally, this chert ranges from grainy to smooth, and small white fossil inclusions and iron streaks are common. At Valmeyer, this chert would have been available at the bedrock source and as stream residuum.

Salem chert occurs as both thick lenses and large nodules (>20 cm diameter), and it ranges in color from shades of brown to gray. Mottling and banding commonly occur in this type. It is a grainy chert which contains small fossil fragments. Salem chert was available in the bedrock exposure in Dennis

Hollow and as large blocks and nodules in the hollow.

The Burlington and overlying Keokuk Limestone are geologically similar and can be distinguished only on the basis of associated fossils (Willman et al. 1975). As a result, the two are usually referred to simply as the Burlington-Keokuk Limestone. Burlington/Keokuk chert occurs as both nodules and chunks with white to gray, often thick, cortex. This chert usually occurs in various shades of white, gray, and brown, although there is also a type which is pink, red, and blue. The texture varies from grainy to smooth, and fossils are common and may constitute entire beds. The Crescent Hills quarries, located in Jefferson and St. Louis counties, Missouri, approximately 20 km northwest of the project area, represent an extensive source of residual Burlington chert which was utilized throughout prehistory (Ives 1984). Chert from this source is highly variable in color and texture. Highly fossiliferous types of Burlington chert are abundant in the 11MO841and 11MO891 assemblages. It occurs both in the exposed bedrock and as residuum in Dennis Hollow and other erosional features.

The Fern Glen Formation, exposed in Dennis Hollow, is primarily limestone with some shale and with lenses and continuous chert bands in the upper parts (Odom et al. 1961). The formation is unique in its deep red color that becomes more greenish near the top. While the lower part of the formation tends to be noncherty, the upper part contains small nodules of greenish gray chert (Willman et al. 1975:137). Fern Glen chert is greenish to greenish-red in color, with a medium-grained texture and frequent to occasional small crystalline and fossil inclusions (Emerson 1980).

In Illinois, St. Genevieve chert occurs in the St. Genevieve Limestone Formation, which outcrops in southern St. Clair, western Monroe, and northern Randolph counties. The closest outcrops are approximately 10 km east of the project area. St. Genevieve chert occurs as small nodules (<15 cm in diameter) and as bedded lenses with thin (1 cm and less) light gray or light brown cortex. Colors range from various shades of red, brown, gray, and blue. The red and brown nodular types ("Root Beer" chert) are often banded. Nodules of St. Genevieve chert have a smooth texture while the bedded type ranges from fossiliferous and grainy to smooth. The smooth-textured red and brown nodular form occurs in the Valmeyer assemblages.

Elco chert, which occurs as blocky chunks of residuum, is derived from the Fort Payne Formation of the Valmeyeran Series and is confined in distribution to southern Illinois. Alexander County, between approximately 140 and 170 km southeast of Valmeyer, is a primary source of this chert. Elco chert is a grainy, medium and dark gray to black type with light gray or brown/orange cortex. It is nearly identical to Dover chert, which is found in Tennessee and Kentucky.

Mill Creek chert outcrops in southern Illinois, approximately 120 km southeast of Valmeyer in Union and Alexander counties where it occurs as long flat nodules in the bedrock and as residuum. This brown to gray chert has a grainy texture and a thin, coarse, brown to gray cortex. Small light and dark mottles give Mill Creek chert a "peppered" appearance. Although it was used throughout prehistory, exploitation was most intense during the Mississippian period when this material was actively quarried and used to produce large hoes (Cobb 1988).

Kincaid chert is a highly fossiliferous chert with smooth texture, ranging from grayish-blue to grayish-brown in color. It has a thin, gray to brown cortex. Kincaid chert occurs as thick bedded lenses and outcrops in the western and eastern Shawnee Hills in Randolph, Jackson, Union, and Hardin counties in southern Illinois, approximately 100 to 140 km southeast of Valmeyer. Residual deposits of Kincaid chert are reported in stream beds near Rockwood in Randolph County, near the western border of Shawnee National Forest (Emerson 1980).

Kaolin chert is found in Union County in southern Illinois, approximately 140 km southeast of the project area where it occurs only as residuum. Texture varies from grainy to smooth, and color ranges from translucent/semitranslucent to shades of white, gray, brown, yellow, red, blue, and purple. The cortex is thin, brown, and often rough and pitted. Prehistoric quarries and workshops of Kaolin chert have been found at Iron Mountain in the northwest corner of Union County (Koldehoff 1985).

Cobden/Dongola chert is a high quality nodular chert found approximately 140 km southeast of Valmeyer in Union County, Illinois. It is especially abundant along Clear Creek in northwest Union County. This chert has a smooth texture and is gray to gray-blue in color, often in bands of concentric rings. The cortex is light gray to dark brown in color and may be thin or thick.

Grover/Lafayette Gravel, also referred to as Mounds Gravel, consists of widespread deposits of Pliocene chert gravels in southern and western Illinois (Willman et al. 1975:209). Cherts from these deposits are of variable color and texture, but all typically exhibit a thin, highly polished brown cortex. According to Koldehoff (1985:39), examples from southern Illinois are usually grainy and brown or gray in color. It occurs as ovoid cobbles with maximum dimensions of 10 to 15 cm.

Other Lithic Materials. This category includes limestone, sandstone, and ocher. Given the proximity of the Valmeyer Anticline and the bedrock bluffs exposed in the Mississippi River floodplain, limestone was readily available in the project area. It served a variety of purposes (e.g. construction material, hearth stones, temper, etc.). Since several sandstone units occur in the vicinity of the project area (Willman et al. 1975), this raw material was easily accessible to prehistoric inhabitants as well. It was used primarily for abrading and grinding tools. Ocher, or hematite, is an iron oxide which exists as both a primary component and a secondary by-product of igneous, sedimentary, and metamorphic rocks (Bates and Jackson 1984). In the American Bottom region, ocher is present in upland streams and is believed to be derived from the geochemical alteration of local limestone deposits (Williams 1990:188) and is known, for example, from the Joppa Member of the St. Genevieve Limestone (Willman et al. 1975:143). Ocher most likely was used as a pigment.

Summary. The Valmeyer relocation parcel is located in an area that is rich in various types of lithic raw materials. Several types of chert are exposed in the Valmeyer anticline in the immediate vicinity of the project area, and these represent the most intensively utilized types. In addition, other chert types from more distant sources in southern Illinois are represented at the sites. These indicate that chert was derived from sources up to approximately 140 km southeast of the project area. Other lithic materials, such as limestone, sandstone, and ocher would have been available in the adjacent bluffs and in colluvial and fluvial deposits derived from these bluffs.

Ceramic Analysis

The ceramic analyses were based, as much as possible, on previous studies from Emergent Mississippian and Mississippian sites in the American Bottom (e.g., Fortier et al. 1991; Kelly et al. 1990; McElrath and Finney 1987; Stahl 1985). Ceramics were analyzed for temper, surface treatment, and vessel form. All analyses were made macroscopically. Determinations of cord twist were made, when possible, from the rim sherds for which vessel form was identified.

The unit of analysis used in the ceramic analysis was the individual feature. Reconstructions of rims (and bodies to rims) were made when feasible to establish counts of vessels, which were derived from rim counts. Time constraints precluded extensive attempts to identify cross mends between features. Rim sherds were analyzed minimally for temper and

surface treatment. Rim sherds also were used, when possible, to determine vessel form. Those whose form could be determined had additional attributes recorded. In contrast, body sherds were analyzed only for temper and surface-treatment attributes and counted and weighed. They were not used for further analyses unless they were distinct from the representative assemblage in temper and surface treatment. Comparisons of ceramic types and vessel forms were then made across features to determine chronological and functional differences.

Botanical Analysis

While a tremendous amount of archaeobotanical research has been conducted on floodplain sites in the American Bottom (Bareis and Porter 1984), comparatively little work has been done at sites located on the upland margins. Thus, the archaeobotanical remains from sites in the Valmeyer relocation parcel can aid in understanding the changing nature of subsistence strategies through time and in assessing differences between sites of similar age that are located in different ecological communities within the American Bottom region.

Feature fill samples were collected systematically during the Phase III excavations at 11MO841 and 11MO891. These samples were processed with the aid of a Dausman Flote-Tech flotation system, Model A No. 6, using a standardized set of procedures in both the collection and processing of samples. The methods employed in the collection, processing, and analysis are designed to produce replicable, comparable results within and between archaeobotanical assemblages. In general, the sampling, processing, and analytical procedures used follow those set forth by Asch et al. (1972), Miller (1988), Pearsall (1989), and Wagner (1988).

Flotation samples were collected from identifiable zones in designated cultural features. Sample volume was recorded in the field and later remeasured prior to flotation. Volumetric control of processed samples is critical to establish comparability for discrete categories of remains between divergent sample sizes, both within and between assemblages.

In addition to flotation samples, carbonized materials were hand collected during excavations for potential radiocarbon samples or if they represented unique types of remains (e.g., structural elements). All radiocarbon samples were identified prior to submission, and the remaining hand-collected samples were scanned for preserved seeds or other material of interest. Although not of standard size, these samples can yield taxa not recovered from systematically collected flotation samples.

When dry, the light and heavy fraction flotation samples were sieved and prepared for analysis. Light fraction flotation remains consist of those particles with lower density than the water used in flotation sample processing. Typically, light fraction materials include charred plant remains such as wood charcoal, small seeds, and some nutshell. Also included within the light fraction are uncarbonized rootlets, twigs, and other modern plant parts. The heavy fraction consists of all materials that have a higher density than the water. This includes some larger fragments of charred nutshell, bone, ceramic and lithic artifacts, and gravel. For the 11MO841 samples, all remainders were screened through both 2-mm and 1-mm geological sieves. This process results in three size categories for each sample: ≥2 mm, < 2 mm and ≥1 mm, and < 1 mm. For 11MO891 samples, all remainders also were screened through a .5-mm geological sieve, resulting in four size categories for each sample: ≥2 mm, ≥1 mm and <2 mm, ≥.5 mm and < 1 mm, and < .5 mm. The sorting procedure separated carbonized remains from the mass of uncarbonized rootlets, small twigs, and inorganic debris that comprised the bulk of each sample. Also separated was a small amount of faunal material that consisted of microfaunal elements and fragmentary pieces of bone and shell. Material less than 1 mm in size from 11MO841 and less than .5 mm in size from 11MO891 (the bottom pan) was visually scanned with a stereoscopic dissecting microscope for iden-

tifiable seeds. Identified materials were kept for analysis while the remaining bottom-pan material was not further analyzed. The same steps were taken with the material in the .5 mm and 1–2 mm categories and with identifiable nutshell fragments. In general, wood recovered from this fraction is too fragmentary for accurate taxonomic identification other than the broad categories of ring-porous or diffuse-porous. Aggregate counts and weights of wood in the 1–2 mm fraction from 11MO841 and the .5–1 mm and 1–2 mm fractions from 11MO891 were recorded. The ≥2 mm fraction was similarly divided into subcategories such as nutshell, wood, seeds, and other types of material. All categories then were counted and weighed.

Identification of material followed sorting and initial classification. A stereoscopic dissecting microscope (10.5–63 power magnification), standard references manuals (Core et al. 1979; Jones 1963; Martin and Barkley 1961; Montgomery 1977; United States Department of Agriculture, Forest Service [USDA, FS] 1974), and a comparative collection of carbonized and fresh botanical materials in the Department of Anthropology at the University of Illinois were used to identify material. Identification of ≥2-mm nonwood material was made to at least the genera level when possible. Species-level identification was made only when material could be ascribed exclusively to a single commonly occurring species within a genus. Seeds, wood, and nutshell from the 1–2 mm fraction and seeds from the bottom-pan fractions also were identified this way. Within each sample, wood charcoal identification was made for all pieces present in the ≥2 mm assemblage and for 20 randomly selected pieces from larger samples.

The results of this sorting and analytical procedure allow for the discussion of the archaeobotanical assemblage in terms of ratios, expressed either as taxa/taxa or taxa/unit volume of flotation sediments. The expression of the results as ratios rather than raw counts and weights permits comparisons to be made on both intersite and intrasite levels, regardless of the relative size of the assemblages under consideration. In this analysis, the ratios of interest are: charcoal density, expressed as the total weight of charred botanical materials per standardized 10 liters of sediment; the nutshell-to-wood ratio, expressed as the total count of nutshell versus total wood fragments; and the seed-to-nutshell ratio, which is similarly calculated.

Faunal Analysis

Recovered faunal remains were identified using comparative collections of the Zooarchaeology Laboratory of the University of Illinois at Urbana-Champaign and the Illinois State Museum. All material was identified to the most exclusive taxonomic level possible. The unit of analysis was the individual feature or, if present, cultural stratum. Number of Identified Specimens (NISP) and Minimum Number of Individuals (MNI) are presented for each taxon below the level of family. The derivation of MNI is based on the single most frequently paired element occurring in the sample (Grayson 1984). The MNI for each taxon was calculated separately for each unit of analysis. Other data collected include presence of carnivore and rodent gnawing, age of individual, evidence of modification such as butchering marks or tool use, and presence of burning. All bone from feature excavation and ≥1 mm flotation samples was analyzed.

Human Skeletal Analysis

Human remains were documented according to standards for data collection from human remains presented by Buikstra and Ubelaker (1994). Standard osteological observations include element inventories, age-at-death estimates, sex determinations, assessments of skeletal and dental pathologies, and metric and nonmetric characteristics (skeletal and dental) for each individual and isolated find. These observations have been used to assess the health status and biological affinity of the occupants of 11MO891. A detailed discussion of the methods of analysis is included in Chapter 8 of Volume 3 of this report.

CHAPTER 5.
RESULTS OF PHASE II INVESTIGATIONS

Based on the recommendation by Wells and Burns (1993) that Phase II NRHP evaluations be conducted at sites 11MO841 and 11MO880 located in the Valmeyer relocation parcel, the Public Service Archaeology Program of the University of Illinois was contacted by FEMA and Woodward-Clyde Federal Services, Inc. to undertake this fieldwork. Phase II investigations were conducted during May and June 1994. The field and research orientation of the Phase II investigations included background and archival research to familiarize project personnel with past investigations conducted within the Valmeyer relocation parcel, a controlled surface collection and excavation of posthole tests to define site limits, and the excavation of machine trenches and test units to determine whether intact subsurface deposits were present at the sites.

As proposed by Wells and Burns (1993), 11MO841 covered almost 179 ha in the southeast corner, center, and northeast corner of the Valmeyer relocation parcel (Figure 5-1). The area consists of two rather broad upland ridges and numerous narrow ridges and spurs extending away from the larger upland ridges. Archival research indicated that this definition of site area for 11MO841 was rather atypical for Monroe County (McGowan 1994). Its large size also posed management, methodological, and archaeological interpretive problems. Based on this archival research, it was decided to identify discrete artifact clusters within 11MO841. A controlled surface collection strategy was adopted to identify discrete artifact clusters. Time and budgetary constraints dictated that the entire project area could not undergo a controlled surface collection. It was decided to use the already disced road system, with supplemental tracts, for the controlled surface collection grids. The disced road system generally followed a regular pattern on the broader upland ridges and the higher points along the narrower ridges or ridge spurs. The latter were thought to be the most likely areas to contain archaeological materials. In areas where the road system was not present, supplemental strips were disced. The disced areas generally were divided into 10-x-10-m or 10-x-5-m units and a controlled surface collection was made. Finally, posthole tests and machine trenches were excavated on smaller ridge spurs or near the ridge edge to locate archaeological materials. Based on the controlled surface collection, posthole tests, and machine trenches, as well as the results of the Phase I survey, 17 sites were identified in the Valmeyer relocation parcel. Based on the earlier recommendation of Wells and Burns (1993) and the initial Phase II fieldwork, 14 of these sites were investigated to determine whether they were eligible for listing in the NRHP. Wells and Burns (1993) previously had recommended that no further work be undertaken at 11MO479, 11MO480, and 11MO879, all located in the southwestern corner of the project area, because archaeological deposits at these sites lacked depositional integrity.

The results of the Phase II investigations are presented below. First, an overview of the major investigative techniques and the results of those techniques is presented. Attributes of the controlled surface collection and machine trenches are included, and information on three supplementary approaches—deep trenching, hand-excavated units, and posthole testing—is presented. Following this, data on the 14 sites investigated as part of the Phase II project are organized by the five addition tracts defined for the Valmeyer relocation parcel. These data include site attribute data, investigations undertaken, results of the investigations, and artifacts recovered at the site. Based on this suite of data, the NRHP recommendation is presented. A summary of investigations at areas defined as off-site locales also is included. Complete artifact inventories by provenience within sites and off-site collection grids and machine trenches are presented in the appendices of this volume.

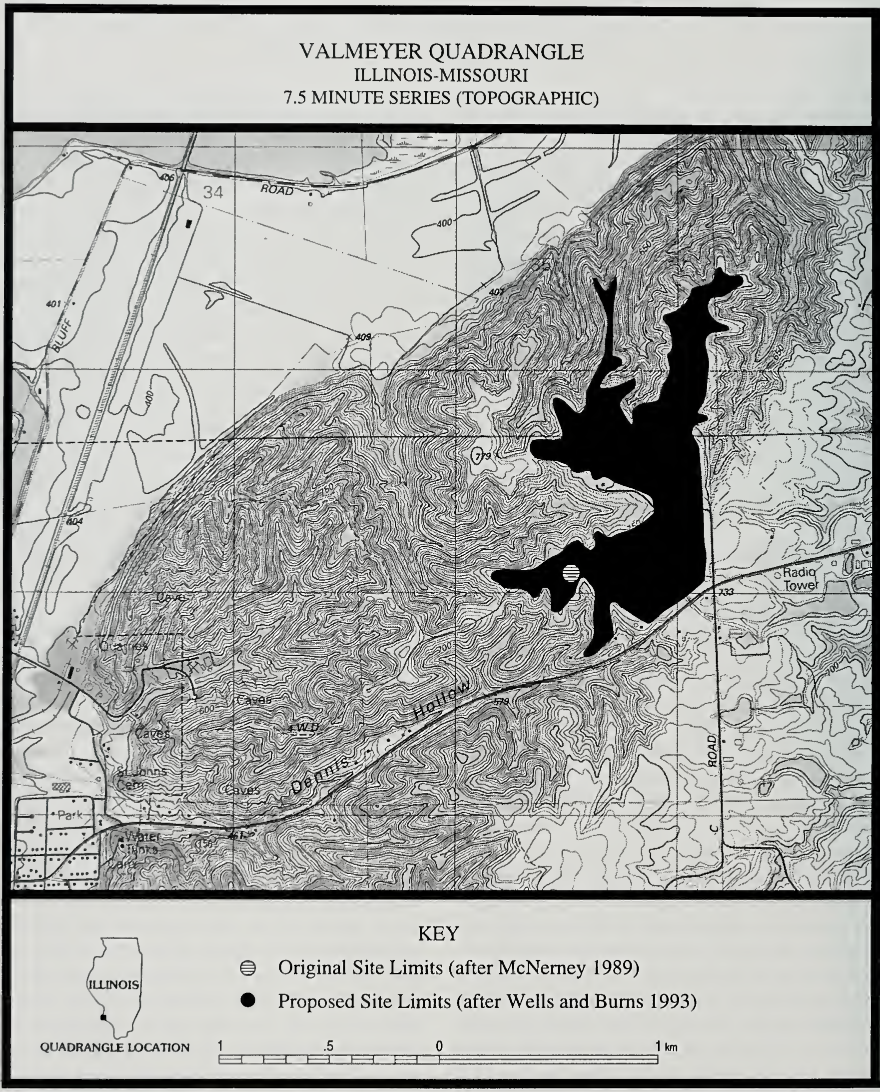

Figure 5-1. Original and Revised Site Area of 11MO841.

Overview of Investigations

As discussed above and in Chapter 4 of this volume, the Phase II field investigations at the Valmeyer relocation parcel centered mainly on conducting a controlled surface collection and excavating machine trenches. In addition, limited use was made of the excavation of posthole tests to locate sites and hand-excavated test units to determine subsurface integrity. Trenches were excavated at a number of locations to investigate whether deeply buried deposits were associated with certain physiographic conditions. This suite of investigations resulted in the recovery of thousands of artifacts, mainly prehistoric, the definition of 14 sites, and the identification of intact subsurface features at three sites: 11MO841, 11MO888, and 11MO891.

Controlled Surface Collections

A controlled surface collection was conducted in all five of the planned additions of the Valmeyer relocation parcel (Figure 5-2). Thirty distinct grids were established across this area, with each grid being of variable length (maximally 1,970 m and minimally 80 m long) and typically one to two units wide (maximally 15 m and minimally 10 m wide). Total area collected within parcels was dependent not only on parcel size, but on amount of relatively flat uplands present in the addition and the amount of construction planned for that particular area. The controlled surface collection resulted in the investigation of 143,150 m^2, or about 14.3 ha (Table 5-1). This represents somewhat less than 10 percent of the overall Valmeyer relocation parcel, but a much higher overall percentage of the flat uplands present within the parcel. Collection grid totals ranged from a high of 9.09 ha in Addition 1 to less than 1 ha in Additions 3 and 4 (Table 5-1). The latter two additions were constrained by small size and limited flat upland area. The specific attributes of the of each grid unit are presented in Table 5-2. Twelve site areas were defined based on the controlled surface collection data.

Posthole Tests

Another field investigative technique employed during the Phase II investigations to identify sites or artifact concentrations was the posthole testing of selected areas. Posthole testing was used in areas with either poor surface visibility or where trees prevented the use of heavy machinery. Three areas were tested in this manner. One area was the extant farmhouse yard along the southern edge of 11MO891. Thirty tests were excavated, and both prehistoric and historic artifacts were recovered. These tests suggested that much of the farmyard area had been disturbed historically. A second area was on a small ridge spur in Addition 2. Artifacts were recovered in the posthole tests, and the area was defined as 11MO885. This site is discussed in greater detail below. The third area was on the ridge spur north of 11MO841. There, artifacts were recovered from a potentially intact E horizon deposit at 40 cm below surface. Subsequently, a hand-excavated test unit was dug on the ridge spur. This is discussed in greater detail below in the section on test units.

Machine Trench Excavations

Machine trenches then were excavated at the 12 sites defined during the controlled surface collection, at two sites defined by other methods, and in off-site areas. Excavation of machine trenches at the 14 sites was designed to identify whether intact archaeological deposits, either features or midden deposits, were present. Machine trenches outside of defined site areas were excavated for two purposes. First, machine trenches were excavated where controlled surface collections could not be conducted. In this instance, the machine trenches were both a site identification and an NRHP eligibility assessment technique. One site was located using this technique. Second, topographically prominent areas such as ridges, where few or no artifacts were found during the controlled surface collection, were further investigated using machine-excavated trenches. These trenches were excavated as a cross-

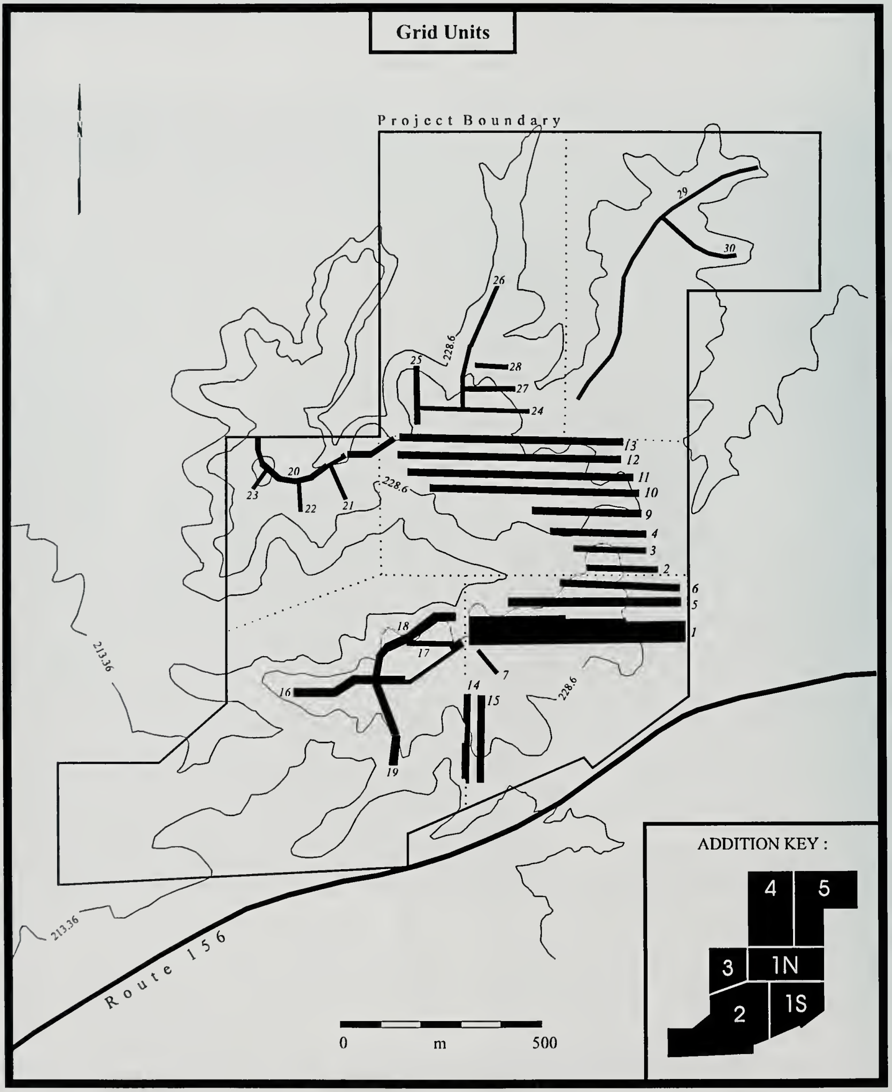

Figure 5-2. Location of Phase II Collection Grids.

Table 5-1. Summary of Collection Grid Attributes by Addition.

Addition	Number of Units Collected	Total Area Collected (m^2)
1	820 10-x-10-m and 178 5-x-10-m units	90,900
2	232 10-x-10-m units	23,200
3	64 10-x-10-m and 40 5-x-10-m units	8,400
4	91 10-x-10-m and 14 5-x-10-m units	9,800
5	102 10-x-10-m and 13 5-x-10-m units	10,850
Total	1,309 10-x-10-m and 245 5-x-10-m units	143,150

check on the results of the controlled surface collection in areas that were intuitively thought to have a somewhat higher likelihood of containing archaeological sites and intact deposits. No additional sites were located by this cross-checking measure.

Overall, 120 machine trenches, totaling slightly over 8,000 m^2 in area, were excavated using various types of heavy machinery (Figure 5-3; Table 5-3). Most of this area was excavated within defined site limits, although over 2,300 m^2 were excavated outside of defined site limits as a cross-check on the controlled surface collection results or as an additional site discovery method. Both the number of machine trenches and the total area excavated are roughly correlated with total site area and the presence of features. As stated above, features were identified at 11MO841, 11MO888, and 11MO891 during the excavation of machine trenches. Three pit features dating to the Archaic period were identified at 11MO841, one undated prehistoric pit feature was found at 11MO888, and eight pit and house features dating to the Emergent Mississippian or Mississippian periods were defined at 11MO891. In addition, a row of historic post molds, denoting the former position of a fence line, was identified near an extant farm structure at 11MO891. Attributes of each of the 120 machine-excavated trenches, including location, site association, total area, and soil stratigraphy, are presented in Table 5-4.

Deep Trench Excavations

Eight trenches were excavated to substantially below the plow zone, often as deep as 1.3 m below surface. Five of these trenches were excavated at slope areas to determine if colluvial/alluvial deposition had resulted in site burial. Machine Trenches 26, 27, and 28 are located at the southern edge of 11MO891 on a gentle south-facing slope and just north of the extant farmstead structure (Figure 5-3). All three were excavated to 1.3 m below surface and exhibited similar soil profiles consisting of an Ap-E/BE-Bt sequence (Figure 5-4). Prehistoric and historic artifacts were found in the E and BE horizons of Machine Trenches 27 and 28. Material in these trenches generally was confined to the initial 30 cm below surface, or the Ap and E/BE horizons. No buried features were located. In addition, 50-x-50-cm hand-excavated units were dug along the profile walls of Machine Trenches 27 and 28. Machine Trench 51 was excavated on the slope of a south-trending upland ridge south of 11MO841 (Figure 5-3). It was excavated to 60 cm below surface and had an Ap-BE-Bt soil profile (Figure 5-4). No material or features were found beneath the plow zone in this trench. Machine Trench 8 was excavated on an east-facing slope north of 11MO887 (Figure 5-3). This trench was excavated to 1.3 m below surface. Documented in this trench was an active plow zone, a remnant of an earlier plow zone, and a Bt horizon (Figure 5-4). Material

Table 5-2. Specific Collection Grid Attributes.

Grid Unit	Location	Comments
1	South Part of Addition 1	197 10-x-10-m units
2	North Part of Addition 1	18 10-x-10-m units
3	North Part of Addition 1	18 10-x-10-m units
4	North Part of Addition 1	24 10-x-10-m units and 24 5-x-10-m units
5	South Part of Addition 1	83 10-x-10-m units
6	South Part of Addition 1	30 10-x-10-m units and 29 5-x-10-m units
7	South Part of Addition 1	8 10-x-10-m units
8	North Part of Addition 1	17 10-x-10-m units
9	North Part of Addition 1	40 10-x-10-m units and 14 5-x-10-m units
10	North Part of Addition 1	104 10-x-10-m units
11	North Part of Addition 1	55 10-x-10-m units and 55 5-x-10-m units
12	North Part of Addition 1	110 10-x-10-m units
13	North Part of Addition 1	55 10-x-10-m units and 51 5-x-10-m units
14	South Part of Addition 1	36 10-x-10-m units and 5 5-x-10-m units
15	South Part of Addition 1	42 10-x-10-m units
16	Central Axis of Addition 2	65 10-x-10-m units
17	North Part of Addition 2	10 10-x-10-m units
18	North Part of Addition 2	49 10-x-10-m units
19	South Part of Addition 2	66 10-x-10-m units
20	Central Axis of Addition 3	44 10-x-10-m units and 40 5-x-10-m units
21	South and East Part of Addition 3	8 10-x-10-m units
22	South and Central Part of Addition 3	7 10-x-10-m units
23	South and West Part of Addition 3	5 10-x-10-m units
24	South Part of Addition 4	26 10-x-10-m units
25	West Part of Addition 4	14 10-x-10-m units and 14 5-x-10-m units
26	Central North-South Axis of Addition 4	30 10-x-10-m units
27	East Part of Addition 4	13 10-x-10-m units
28	East Part of Addition 4	8 10-x-10-m units
29	Central North-South Axis of Addition 5	80 10-x-10-m units and 13 5-x-10-m units
30	East Part of Addition 5	22 10-x-10-m units

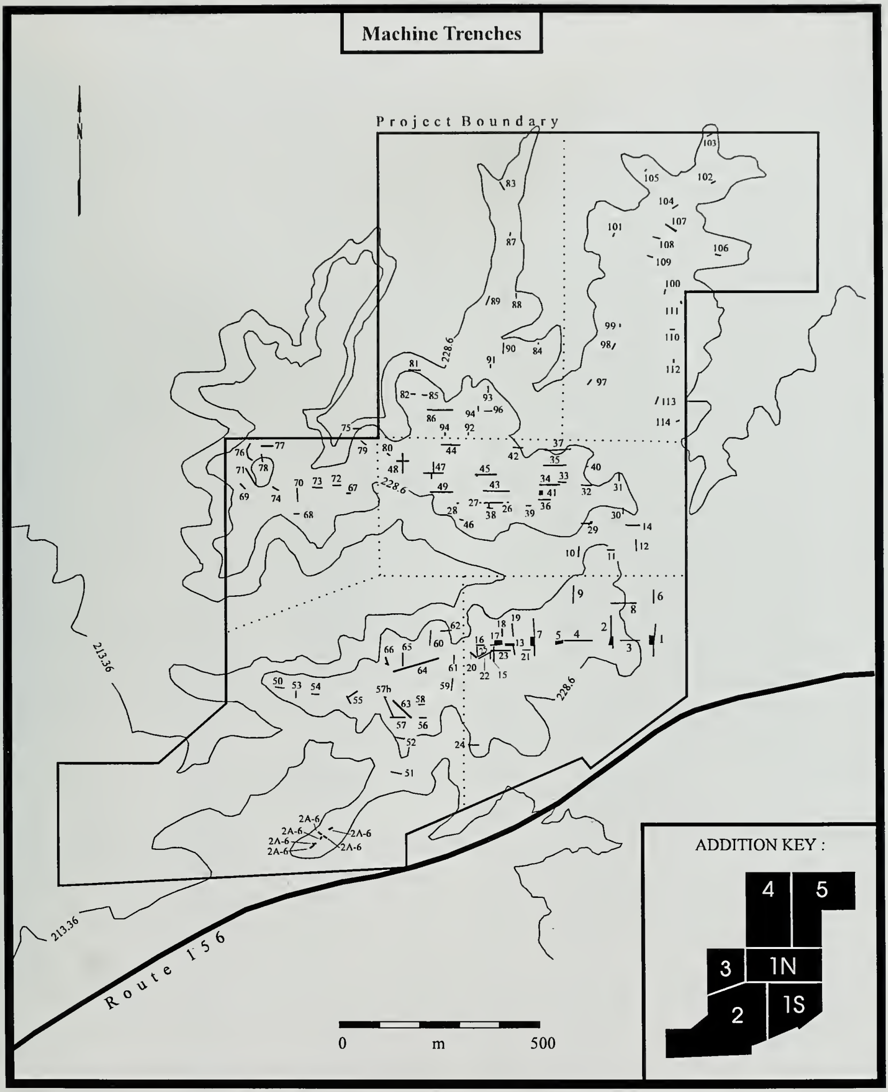

Figure 5-3. Location of Phase II Machine Trenches and Test Unit.

Table 5-3. Summary of Machine Trench Attributes by Addition.

Provenience	Area Excavated (m^2)	Number of Trenches
Off Site		
Addition 1 South	367	5
Addition 1 North	1,060	14
Addition 2	114	4
Addition 3	86	2
Addition 4	472	13
Addition 5	244	11
On Site		
11MO841	1,176	13
11MO880	494	11
11MO885	124	6
11MO886	330	1
11MO887	321	2
11MO888	1,919	13
11MO889	78	2
11MO890	137	3
11MO891	797	10
11MO892	76	2
11MO893	30	1
11MO894	136	4
11MO895	23	1
11MO896	54	2
Total	8,083	120

was found in the modern and remnant plow zone. The results of these trench excavations suggested that there was little potential for complete burial of sites along upland ridge side slopes due to colluviation/alluviation in the Valmeyer relocation parcel.

Three deep trenches were excavated in sinkholes adjacent to sites. Machine Trench 40 was located in a small sinkhole northwest of 11MO889 (Figure 5-3). It was excavated to 1.3 m below surface, and a culturally redeposited soil profile was defined (Figure 5-5). No artifacts or buried features were located in this trench. Machine Trench 47 was excavated in a sinkhole located in the southwestern quadrant of 11MO891 (Figure 5-3). It was excavated in a roughly cruciform shape to examine all portions of the sinkhole. The trench was excavated to approximately 1.7 m below surface, and three soil zones were defined (Figure 5-5). The first is a 90-cm thick Ap horizon, both modern and colluvially/alluvially deposited. Next was a dark brown zone, 10–20 cm thick, that contained charcoal, prehistoric pottery sherds, and lithics. This zone was interpreted as a potential midden layer. Below this was a lighter soil with fewer artifacts. The potential midden layer was defined as Feature 12, and is discussed in greater detail in the 11MO891 Phase II site discussion below. Machine Trench 62 was excavated in a sinkhole at the northeast corner of 11MO841 (Figure 5-3). It was excavated to ca. 2 m below surface, and it, too, exhibited a midden zone. The zone, encountered at approximately 1 m below surface, extended variously an additional 30 cm to 80 cm below surface. Chert flakes and a biface (recovered at 1.3 m below surface) were found in this trench.

Hand-Excavated Units

Aside from two small units associated with Machine Trenches 27 and 28 discussed above, one formal test unit was hand excavated along the northern edge of 11MO841. This unit was placed on a tree-covered spur overlooking a deep ravine (Figure 5-3). Earlier, eight posthole tests had been excavated on this spur. The tests identified a potentially intact E horizon at 30–60 cm below surface; flakes were recovered to a depth of 40 cm below surface. Based on these results, a test unit was excavated on the ridge to determine the potential for the presence of intact prehistoric feature or midden deposits at that locale. The unit measured 1-x-2 m and was excavated to approximately 60 cm below

Table 5-4. Specific Machine Trench Attributes.

Machine Trench	Addition	Site	Total Area (m^2)	Comments
1	1 South	11MO886	330	Plow zone to subsoil stratigraphy
2	1 South	11MO887	267	Plow zone to subsoil stratigraphy
3	1 South	11MO887	54	Plow zone to subsoil stratigraphy
4	1 South	Off site	144	Plow zone to subsoil stratigraphy
5	1 South	11MO888	100	Plow zone to subsoil stratigraphy
6	1 South	Off site	40	Plow zone to subsoil stratigraphy
7	1 South	11MO888	350	Plow zone to subsoil stratigraphy
8	1 South	Off site	70	Plow zone to subsoil stratigraphy
9	1 South	Off site	50	Plow zone to subsoil stratigraphy
10	1 North	Off site	50	Plow zone to subsoil stratigraphy
11	1 North	Off site	40	Plow zone to subsoil stratigraphy
12	1 North	Off site	90	Plow zone to subsoil stratigraphy
13	1 South	11MO888	248	Plow zone to subsoil stratigraphy
14	1 North	Off site	108	Plow zone to subsoil stratigraphy
15	1 South	11MO888	72	Plow zone to subsoil stratigraphy
16	1 South	11MO888	78	Plow zone to subsoil stratigraphy
17	1 South	11MO888	220	Plow zone to subsoil stratigraphy
18	1 South	11MO888	20	Plow zone to subsoil stratigraphy
19	1 South	11MO888	35	Plow zone to subsoil stratigraphy
20	1 South	11MO888	90	Plow zone to subsoil stratigraphy
21	1 South	11MO888	20	Plow zone to subsoil stratigraphy
22	1 South	11MO888	52	Feature 8 identified in this trench
23	1 South	11MO888	9	Plow zone to subsoil stratigraphy
24	1 South	Off site	63	Ap-E-Bt stratigraphy
25	1 South	11MO888	625	Plow zone to subsoil stratigraphy
26	1 North	Off site	6	Ap-E/BE-Bt stratigraphy
27	1 North	11MO891	6	Ap-E-BE-Bt stratigraphy
28	1 North	11MO891	6	Ap-E-BE-Bt stratigraphy
29	1 North	Off site	93	Ap-E-BE stratigraphy
30	1 North	Off site	286	Plow zone to subsoil stratigraphy
31	1 North	11MO889	22	Plow zone to subsoil stratigraphy
32	1 North	11MO889	56	Ap-BE-Bt stratigraphy
33	1 North	Off site	30	Ap-BE-Bt stratigraphy
34	1 North	Off site	53	Ap-BE-Bt stratigraphy
35	1 North	Off site	110	Plow zone to subsoil stratigraphy
36	1 North	11MO890	31	Ap-BE-Bt stratigraphy

Table 5-4. Continued.

Machine Trench	Addition	Site	Total Area (m^2)	Comments
37	1 North	Off site	124	Plow zone to subsoil stratigraphy
38	1 North	11MO891	89	Historic fence post mold pattern present
39	1 North	11MO890	16	Ap-E-Bt stratigraphy
40	1 North	Off site	10	Ap-BE stratigraphy
41	1 North	11MO890	90	Plow zone to subsoil stratigraphy
42	1 North	Off site	50	Plow zone to subsoil stratigraphy
43	1 North	11MO891	63	Ap-E-Bt stratigraphy
44	1 North	11MO891	115	Features 9, 10, 13, 14 and 15 present
45	1 North	11MO891	67	Feature 11 present
46	1 North	Off site	10	Plow zone to subsoil stratigraphy
47	1 North	11MO891	115	Feature 12/sinkhole
48	1 North	11MO891	219	Ap-E-Bt stratigraphy
49	1 North	11MO891	78	Ap-E-Bt stratigraphy
50	2	Off site	25	Plow zone to subsoil stratigraphy
51	2	11MO841	45	Plow zone to subsoil stratigraphy
52	2	11MO841	45	Feature 16 present
53	2	Off site	17	Plow zone to subsoil stratigraphy
54	2	Off site	20	Plow zone to subsoil stratigraphy
55	2	Off site	52	Plow zone to subsoil stratigraphy
56	2	11MO841	27	Ap-BE-Bt stratigraphy
57	2	11MO841	162	Ap-BE-Bt stratigraphy
58	2	11MO841	25	Ap-E-BE-Bt stratigraphy
59	2	11MO841	54	Plow zone to subsoil stratigraphy
60	2	11MO841	95	Plow zone to subsoil stratigraphy
61	2	11MO841	36	Plow zone to subsoil stratigraphy
62	2	11MO841	64	Possible midden deposit/sinkhole
63	2	11MO841	176	Ap-BE-Bt stratigraphy
64	2	11MO841	300	Features 17 and 18 present
65	2	11MO841	63	Plow zone to subsoil stratigraphy
66	2	11MO841	84	Plow zone to subsoil stratigraphy
67	3	11MO880	20	Ap-BE-Bt stratigraphy
68	3	11MO880	30	Plow zone to subsoil stratigraphy
69	3	11MO880	32	Plow zone to subsoil stratigraphy
70	3	11MO880	50	Plow zone to subsoil stratigraphy
71	3	11MO880	74	Plow zone to subsoil stratigraphy

Table 5-4. Continued.

Machine Trench	Addition	Site	Total Area (m^2)	Comments
72	3	11MO880	36	Plow zone to subsoil stratigraphy
73	3	11MO880	45	Ap-BE-Bt stratigraphy
74	3	11MO880	40	Plow zone to subsoil stratigraphy
75	3	Off site	40	Plow zone to subsoil stratigraphy
76	3	11MO880	77	Ap-BE-Bt stratigraphy
77	3	11MO880	54	Plow zone to subsoil stratigraphy
78	3	11MO880	36	Ap-BE-Bt stratigraphy
79	3	Off site	46	Plow zone to subsoil stratigraphy
80	1 North	11MO891	39	Feature 19 present
81	4	Off site	50	Plow zone to subsoil stratigraphy
82	4	Off site	18	Ap-BE-Bt stratigraphy
83	4	Off site	36	Plow zone to subsoil stratigraphy
84	4	Off site	4	Plow zone to subsoil stratigraphy
85	4	Off site	27	Ap-BE-Bt stratigraphy
86	4	Off site	108	Ap-BE-Bt stratigraphy
87	4	Off site	16	Plow zone to subsoil stratigraphy
88	4	Off site	26	Plow zone to subsoil stratigraphy
89	4	11MO893	30	Ap-BE-Bt stratigraphy
90	4	Off site	60	Plow zone to subsoil stratigraphy
91	4	Off site	60	Plow zone to subsoil stratigraphy
92	4	Off site	14	A-E-B stratigraphy
93	4	11MO892	32	Ap-BE-Bt stratigraphy
94	4	11MO892	32	Plow zone to subsoil stratigraphy
95	4	Off site	21	A-E-B stratigraphy
96	4	11MO892	44	Ap-BE-Bt stratigraphy
97	5	Off site	36	Plow zone to subsoil stratigraphy
98	5	Off site	36	Plow zone to subsoil stratigraphy
99	5	Off site	18	Ap-BE-Bt stratigraphy
100	5	Off site	23	Ap-BE-Bt stratigraphy
101	5	Off site	20	Plow zone to subsoil stratigraphy
102	5	Off site	20	Plow zone to subsoil stratigraphy
103	5	Off site	16	Plow zone to subsoil stratigraphy
104	5	11MO894	25	Ap-BE-Bt stratigraphy
105	5	Off site	12	Plow zone to subsoil stratigraphy
106	5	11MO895	23	Ap-BE-Bt stratigraphy
107	5	11MO894	48	Plow zone to subsoil stratigraphy

Table 5-4. Concluded.

Machine Trench	Addition	Site	Total Area (m^2)	Comments
108	5	11MO894	34	Plow zone to subsoil stratigraphy
109	5	11MO894	29	Ap-BE-Bt stratigraphy
110	5	Off site	18	Plow zone to subsoil stratigraphy
111	5	Off site	27	Plow zone to subsoil stratigraphy
112	5	11MO896	18	Ap-BE-Bt stratigraphy
113	5	11MO896	36	Ap-BE-Bt stratigraphy
114	5	Off site	18	Ap-BE-Bt stratigraphy
2A-1	2	11MO885	30	A-E-B stratigraphy
2A-2	2	11MO885	18	A-E-B stratigraphy
2A-3	2	11MO885	18	A-E-B stratigraphy
2A-4	2	11MO885	20	A-E-B stratigraphy
2A-5	2	11MO885	20	A-E-B stratigraphy
2A-6	2	11MO885	18	A-E-B stratigraphy

surface. Two soil horizons were identified (Figure 5-6). The initial horizon, 10–20 cm thick, is a dark yellowish brown (10YR4/4) silt loam with evidence of historic disturbance. The second horizon is a 30–40 cm thick yellowish brown (10YR5/6) silt loam that may represent an intact E horizon. The majority of artifacts were found between 0 and 40 cm below surface, although a few flakes were recovered below this level.

Summary

The suite of investigative techniques proposed for the Phase II NRHP evaluation of the Valmeyer relocation parcel succeeded in fulfilling the major goals set forth prior to the initiation of fieldwork. The controlled surface collection allowed the separation of the 11MO841 site area, suggested by Wells and Burns (1993) as 179 ha, into 12 sites (Figure 5-7). The size and location of 11MO880, previously defined by Wells and Burns (1993), also was confirmed. Posthole testing of a small tree-covered ridge spur in Addition 2 resulted in the identification of an additional site, 11MO885, and machine trenching along the bluff edge in Addition 5 led to the discovery of 11MO896 (Figure 5-7).

Upon completion of these initial tasks, subsurface testing was conducted at these 14 sites and at prominent topographic features between sites. Features were not located at 11 of these sites, most likely due to the effects of plowing and erosion. Features were located at three sites, 11MO841, 11MO888, and 11MO891. The features at 11MO841 consisted of a number of Archaic period pits while a single prehistoric pit feature was located at 11MO888. Houses, pits, and a possible burial dating to the Emergent Mississippian and Mississippian periods were found at 11MO891. In addition, deep trenches were excavated along ridge slopes and in sinkholes in an attempt to determine whether intact deposits were present, or were likely to be present, in those topographic features. Midden-like deposits were found in two sinkholes, one adjacent to 11MO841 and the other adjacent to 11MO891. Based on the results of these investigations, sites 11MO841 and 11MO891 were recommended as eligible for listing in the NRHP.

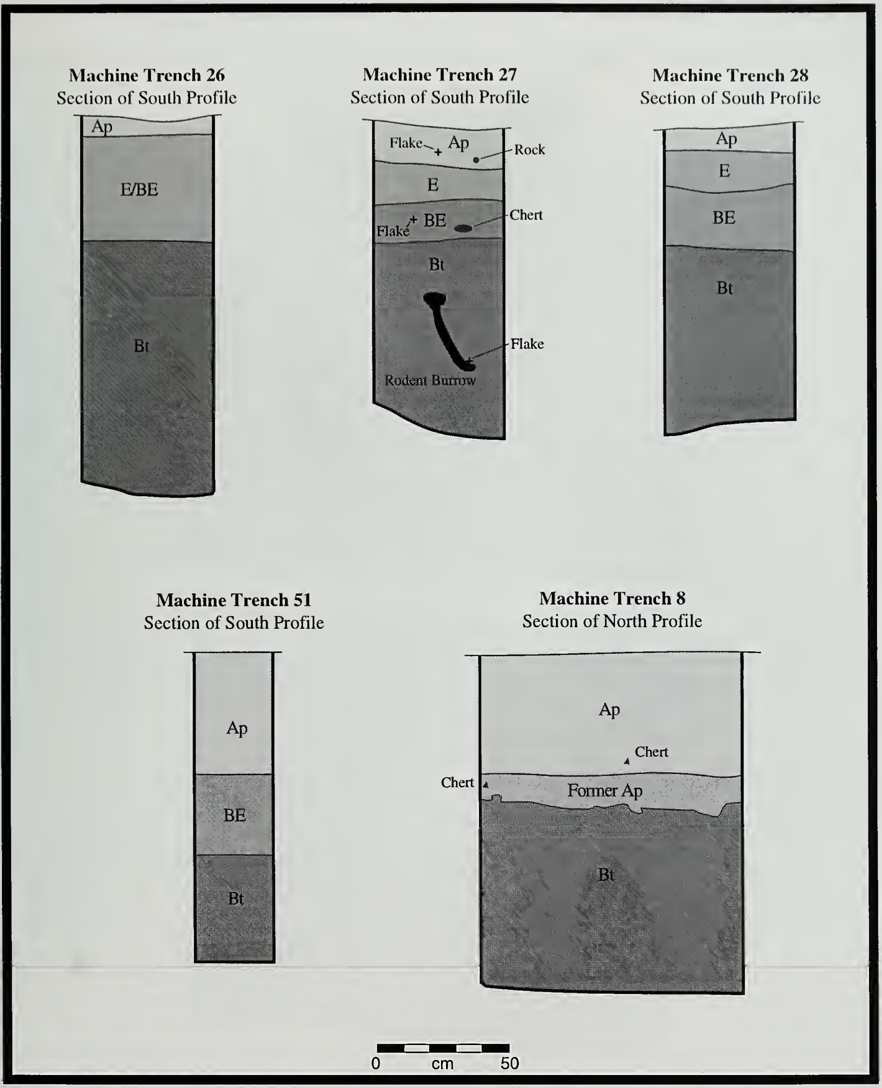

Figure 5-4. Profiles of Deep Trenches Excavated on Ridge Side Slopes.

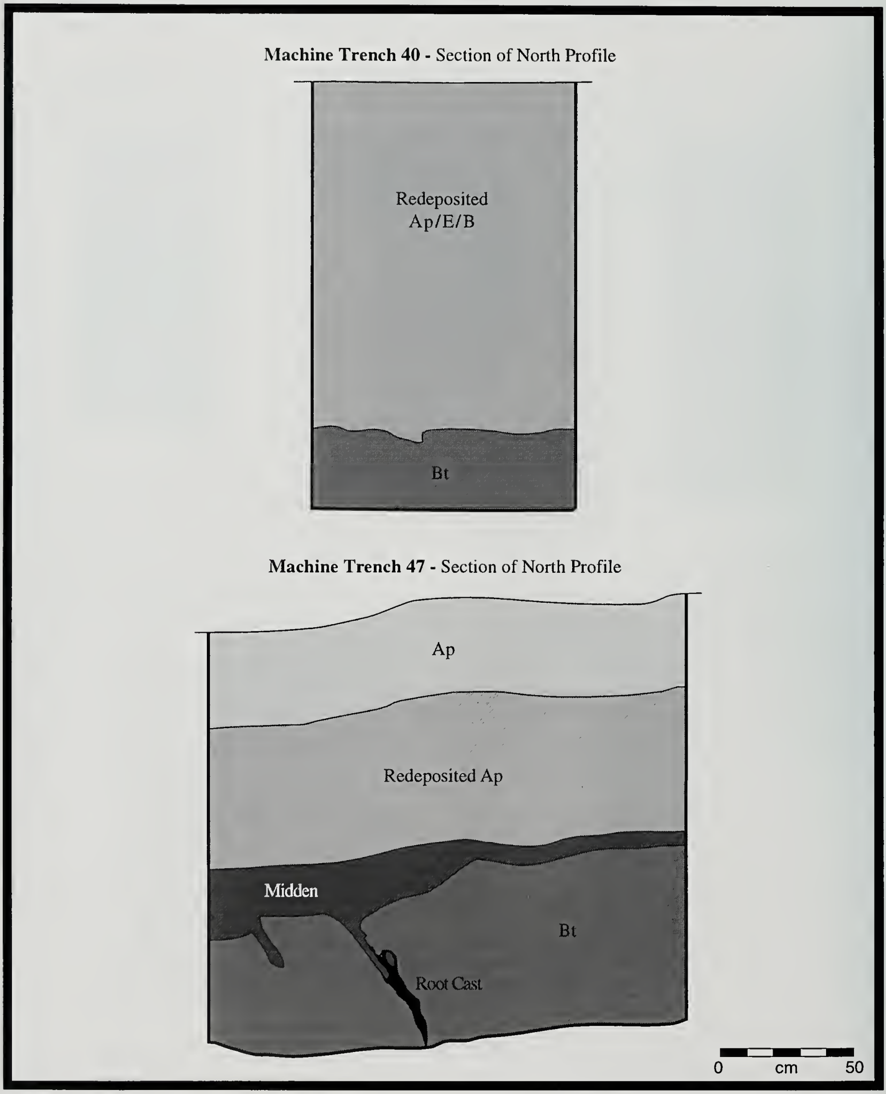

Figure 5-5. Profiles of Deep Trenches Excavated in Sinkholes.

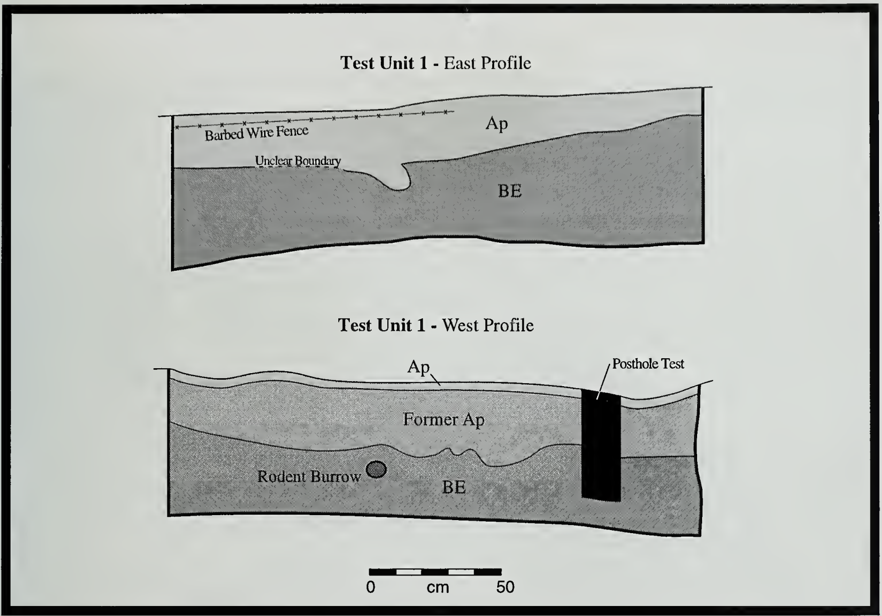

Figure 5-6. Wall Profiles of Test Unit 1.

Site Overviews

Based on the controlled surface collections, posthole excavations, and, in one case, machine trenching, 14 site areas were defined for NRHP evaluation. Machine trenching, deep trenching, and limited numbers of hand-excavated units were used to determine whether intact features or midden deposits were present at each of these sites. Below is a site-by-site overview of the results of investigations undertaken during the Phase II evaluation of the 14 sites. The overview is organized by addition tracts. Site location, discovery technique, and evaluation techniques are described. A brief overview of the archaeological materials collected at each site also is presented. Based on the results of both the field and laboratory investigations, an NRHP evaluation is presented for each site. In addition, the results of off-site investigations are summarized.

Addition 1 South

Addition 1 South is located in the southeast corner of the Valmeyer relocation parcel. It consists of approximately 60 acres of a broad, gently rolling upland ridge. The head of Dennis Hollow lies along the southern edge of this addition. The previous Phase I survey had subsumed much of the area within 11MO841 (Wells and Burns 1993) (Figure 5-1). At the time of investigations, the area was an

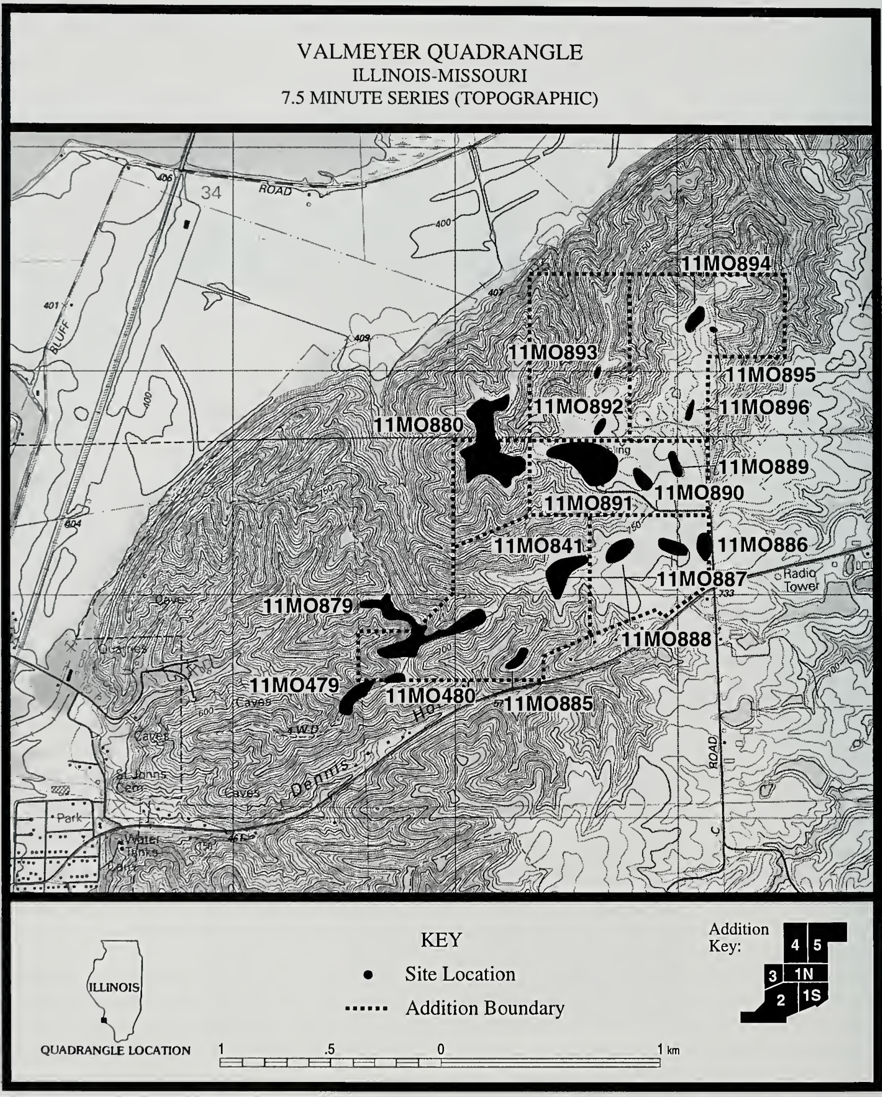

Figure 5-7. Site Areas Defined During Phase II Investigations.

agricultural field planted in wheat. Six controlled surface collection grids were established across this tract (Figure 5-8; Table 5-2). Three of these, 1, 5, and 6, were oriented east-west. Two, 14 and 15 loated in the southwest corner of the addition, were oriented north-south. Grid 7 was oriented northwest-southeast. Aside from Grid 1, all were 10–15 m wide and from 70 to 440 m long. Grid 1 was 70 m wide and 530 m long. The controlled surface collection resulted in the identification of three distinct artifact scatters designated 11MO886, 11MO887, and 11MO888 within this addition (Figure 5-8).

11MO886

Site 11MO886, previously defined as part of 11MO841 by Wells and Burns (1993), is a fairly dense prehistoric lithic scatter (1.35 artifacts per 10 square meters) along the eastern boundary of Addition 1 South. Artifacts were located on a slight north to south trending rise within the flat upland ridge. At the time of investigation the surrounding area was a planted wheat field. Prior to fieldwork, an area corresponding to a proposed road had been disced and was designated as Collection Grid 1 (Figure 5-8). The site was identified within the eastern edge of Grids 1 and 5. Based on the controlled surface collection, maximal site dimensions of 120 m north-south by 40 m east-west (ca. 4,800 m^2) were defined. Recovered during the controlled surface collection were over 500 pieces of debitage and many bifaces and ground-stone tools. Machine Trench 1 was excavated within the site area (Table 5-4). This irregular machine trench, oriented north-south, covered 330 m^2. Artifacts were found in the plow zone to 30 cm below surface, but no intact sub-plow zone features or midden deposits were identified. Based on a lack of intact features or sub-plow zone deposits, the site was recommended not eligible for listing in the NRHP. No further work was conducted at 11MO886.

In all, 650 artifacts were recovered from the controlled surface collection (n=518, 80 percent) and machine-trench excavations (n=132, 20 percent) at 11MO886. This yielded a recovery rate of 1.35 artifacts per 10 m^2. Most of the material (n=590, 91 percent) consists of debitage, including cores (n=8), primary flakes (n=34), secondary flakes (n=63), tertiary flakes (n=129), bipolar flakes (n=3), bifacial thinning flakes (n=15), broken flakes (n=143), and shatter (n=195). Thirteen of the flakes show signs of utilization. Relatively few formal chipped-stone tools are present in the assemblage (n=18, 3 percent). These include thick bifaces (n=3), thin bifaces or fragments (n=9), projectile points/knives (n=3) (Figure 5-9), and single examples of an unclassified biface, retouched flake, and unclassified uniface. Ground-stone artifacts (n=10, 1.5 percent) consist of eight hammerstones and two pitted cobbles. Other material collected includes 13 pieces of fire-cracked rock and 19 unmodified chert cobbles.

The diagnostic projectile points and thin biface fragments suggest that 11MO886 was occupied from the Dalton horizon through the Late Woodland or Mississippian period. The temporally earliest artifact, a Dalton projectile point base made of Salem chert, was found on the surface (Figure 5-9, a). Another early projectile point from the surface is identified as a MacCorkle Stemmed point, dating to the Early Archaic period (Figure 5-9, b). A biface with missing tip from Machine Trench 1 is attributed to the Late Archaic Stemmed Cluster (Justice 1987) (Figure 5-9, c). This biface may be either a Karnak Stemmed or McWhinney Heavy Stemmed point. The final diagnostic biface is a triangular projectile point traditionally associated with the Late Woodland or Mississippian periods (Figure 5-9, d). This biface, also from Machine Trench 1, is slightly larger with a broader base than is typical for Madison Triangular points (Justice 1987). It may be the tip of a hafted biface that was resharpened and ground into the triangular shape. These temporally diagnostic projectile points suggest a site occupation mainly during the Archaic period. If the triangular projectile point does date to the Late Woodland or Mississippian periods, such an occupation was probably short-term, given the absence of similarly dated ceramics and features at the site.

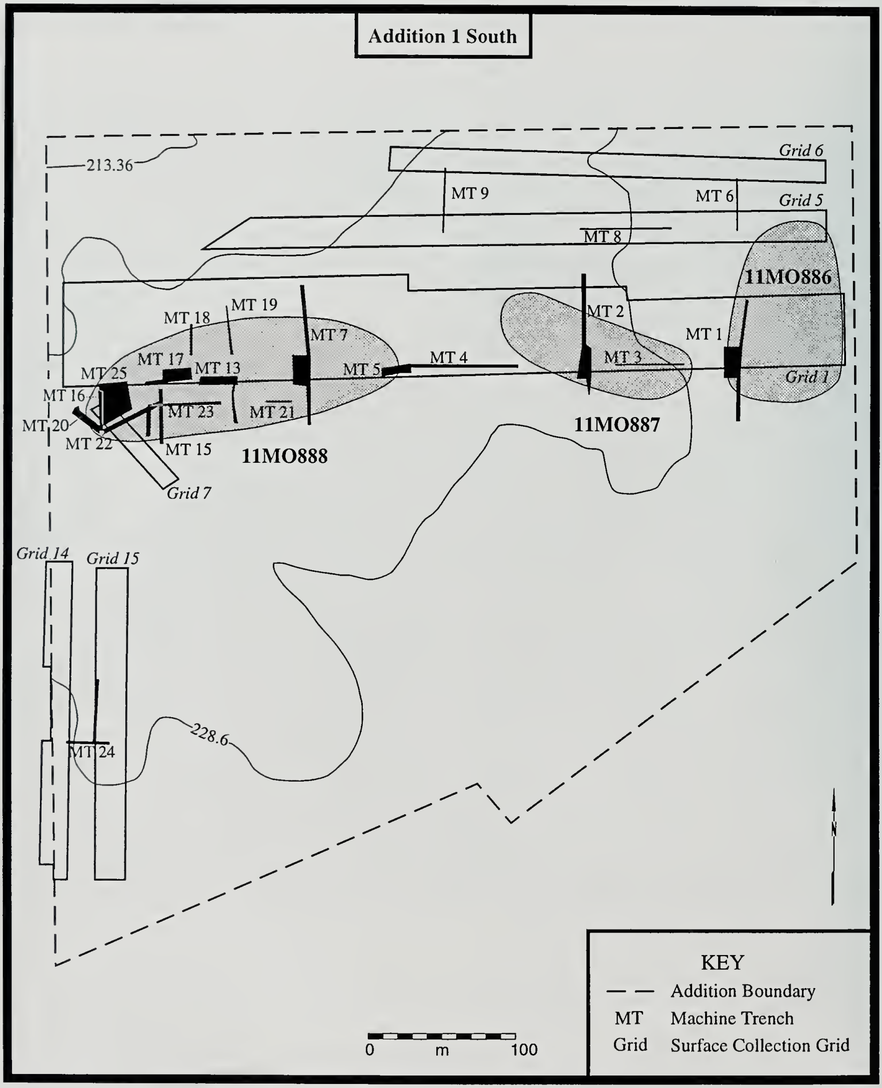

Figure 5-8. Collection Grids, Machine Trenches, and Site Areas in Addition 1 South.

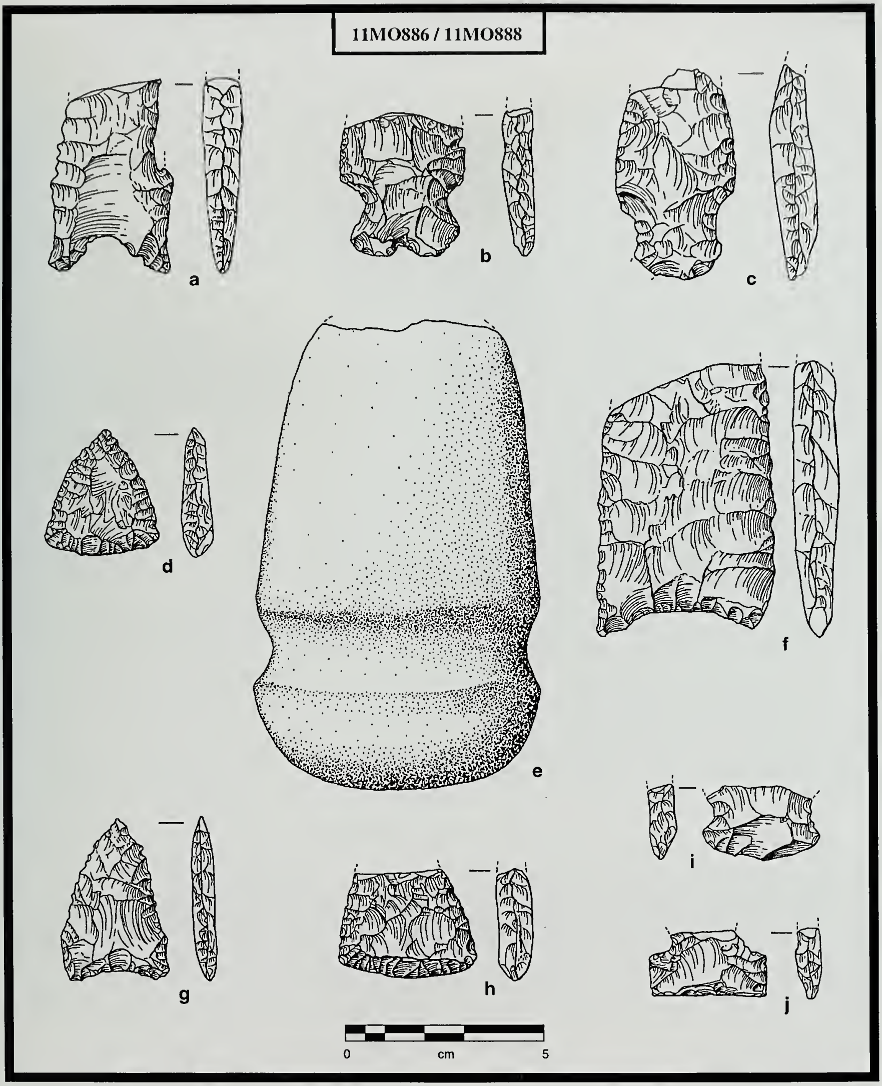

Figure 5-9. Projectile Points and Axe from 11MO886 (a-d) and 11MO888 (e-j): a, Dalton; b, MacCorkle Stemmed; c, Late Archaic Stemmed Cluster (Karnak Stemmed or McWhinney Heavy Stemmed); d, Triangular; e, Fully Grooved Axe; f, Plainview; g, Dalton: h, Hardin Barbed; i, Raddatz; j, Godar.

11MO887

Site 11MO887, previously included as part of 11MO841 by Wells and Burns (1993), is a prehistoric lithic debris scatter with a density of .74 artifacts per 10 m². The scatter is located on a slight knoll on the broad, flat upland ridge of the east-central portion of the Valmeyer relocation parcel (Figure 5-8). The area is within an active agricultural field planted in wheat. The site was identified during the controlled surface collection conducted in Grid 1. More than 450 artifacts, consisting of debitage and biface fragments, were recovered during the controlled surface collection. Based on the distribution of material, an oval site area with maximal dimensions of 120 m northwest-southeast by 60 m northeast-southwest (ca. 7,200 m²) was defined. Two machine trenches, Machine Trenches 2 and 3, then were excavated to determine whether intact deposits were present (Figure 5-8; Table 5-4). The trenches were oriented both north-south and east-west and were of irregular shape. Combined, the excavated area of the two trenches totaled 321 m². All artifacts from the machine trenches were recovered from plow zone contexts, and no subsurface features or midden were identified. Based on the lack of intact features and artifacts from sub-plow zone contexts, it was recommended that this site is not eligible for listing in the National Register of Historic Places. No further work was conducted at 11MO887.

A total of 535 lithic artifacts was collected at 11MO887. Of this, 483 artifacts (90 percent) were obtained during the controlled surface collection while the remaining 52 artifacts (10 percent) were recovered during the excavation of Machine Trench 2. No artifacts were recovered from Machine Trench 3. The overall site assemblage is dominated by lithic debitage and cores (n=502, 94 percent). These include cores (n=13), primary flakes (n=22), secondary flakes (n=83), tertiary flakes (n=117), broken flakes (n=136), shatter (n=130), and a single bifacial thinning flake. Nine of the flakes are utilized. Few chipped-stone tools were recovered (n=9, 1.5 percent), none of which is temporally diagnostic. Chipped-stone tools include one rough, three thick, and four unclassified biface fragments as well as a single unclassified uniface. Ground-stone tools consist of three hammerstones and two pitted cobbles. Fifteen pieces of fire-cracked rock and four unmodified chert cobbles also were collected. As no temporally diagnostic artifacts were recovered, a period of occupation could not be determined for 11MO887.

11MO888

Site 11MO888, also included by Wells and Burns (1993) as part of 11MO841, is a dense prehistoric artifact scatter (2.02 artifacts per ten square meters). Artifacts were located at the crest of the large upland ridge (Figure 5-8). To the north of the scatter is a ravine that drains westward into the Mississippi River floodplain. The surrounding area was planted in wheat. This large, oval site was identified within Grid 1 and to its south. Maximal site dimensions of 170 m northeast-southwest by 80 m northwest-southeast (13,600 m²) were defined. The surface collection includes more than 3,000 pieces of debitage, bifaces, ground-stone tools, hammerstones, a drill, and an adze. Thirteen machine trenches were excavated within the site, totaling 1,919 m² (Figure 5-8; Table 5-4). Artifacts were recovered from both the plow zone and a single feature. Since no additional features were located and all other artifacts were from the plow zone, it was concluded that this site for the most part lacked subsurface integrity and is recommended as not eligible for listing in the National Register of Historic Places. No further work was conducted at 11MO888.

The single feature at this site, Feature 8, was identified in Machine Trench 22 at the southwestern edge of the site area. The feature was defined at 48 cm below ground surface and is roughly oval in shape (Figure 5-10). Maximal dimensions in plan view are 112 cm north-south by 82 cm east-west. The feature was bisected along a north-south line and the west half excavated. The southwest quarter

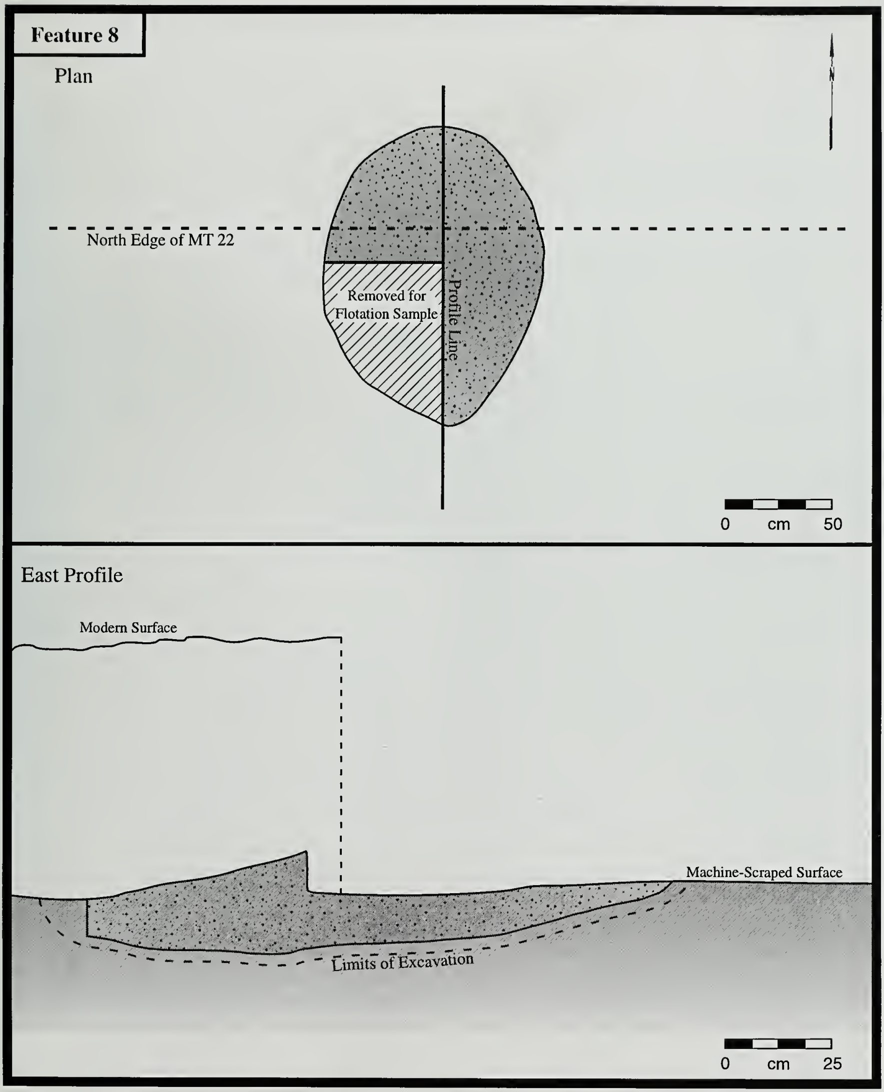

Figure 5-10. Plan View and Profile of Feature 8.

was removed as a flotation sample. A single zone of fill, maximally 17 cm deep, was identified in profile. The fill consisted of a dark yellowish brown (10YR4/4) heavy silty clay loam. Carbonized nutshell and 27 pieces of lithic debitage were recovered from feature fill. The debitage includes secondary flakes (n=4), tertiary flakes (n=2), bifacial thinning flakes (n=1), broken flakes (n=12), and shatter (n=7). In addition, a single minimally retouched flake was found in the west half of this feature.

A total of 2,755 lithic artifacts was recovered during the controlled surface collection, machine trenching, and excavation of Feature 8 at 11MO888. Most of the material was recovered during the controlled surface collection (n=1,841, 67 percent), although a fairly large amount was found during the excavation of machine trenches (n=887, 32 percent). Lithic debris is by far the most common artifact class present, accounting for almost 90 percent of the entire assemblage (n=2,466). The debitage consists of cores (n=33), primary flakes (n=140), secondary flakes (n=456), tertiary flakes (n=245), bifacial thinning flakes (n=282), broken flakes (n=690), shatter (n=618), and blades (n=2). Of this total, 156 flakes evidence some form of use-wear. Chipped-stone tools constitute 5 percent of the assemblage (n=135). These include rough (n=4), thick (n=12), and thin bifaces (n=12); projectile points (n=3) (Figure 5-9); end scrapers (n=7); gravers (n=7); perforators (n=6); and wedges (n=5). In addition, 78 formally retouched flakes and one formally retouched blade are present in the assemblage. Ground-stone tools include hammerstones (n=17), pitted cobbles (n=5), abraders (n=2), and single examples of a grinding-stone fragment and a fully grooved axe (Figure 5-9, e). Other artifacts include fire-cracked rock (n=105) and unmodified rock (n=23).

The three projectile point fragments found at 11MO888 all indicate a Late Paleoindian to Early Archaic period occupation of the site. Earliest dating is a basal fragment and partial midsection of a possible Plainview point found on the surface (Figure 5-9, f). Justice (1987) dates Plainview projectile points to the Late Paleoindian period. A reworked Dalton point was recovered during the excavation of Machine Trench 22 (Figure 5-9, g). Dalton points date to the Dalton horizon, variously interpreted as Late Paleoindian or Early Archaic (Justice 1987). The final projectile point is a small fragment of a Hardin Barbed point found on the surface (Figure 5-9, h). Hardin Barbed points date to the Early Archaic period (Justice 1987). Two other points were recovered from the surface just north of the area defined as 11MO888. Both date to the Middle Archaic period (Figure 5-9, i-j). One is the base of a possible Raddatz point while the other is the base of a Godar point (Justice 1987). These projectile points indicate that an additional Middle Archaic period component also may be present at 11MO888.

Addition 1 North

Located north of Addition 1 South, Addition 1 North occupies the central portion of the Valmeyer relocation parcel (Figure 5-7). The addition is approximately 75 acres in size and is situated on a large upland ridge. A wide, steep ravine along the southern boundary separates Addition 1 North from Addition 1 South. This ravine drains westward and eventually northward to the bluff edge and the Mississippi River floodplain. At the time of investigations the area was planted in wheat with trees covering the side slopes and ravine. Nine collection grids were established in this addition. Grids 2, 3, 4, 9, 10, 11, 12, and 13 were oriented east-west while Grid 8 was oriented north-south (Figure 5-11). Grid width varied between 10 m and 15 m while lengths ranged from 180 to 540 m. The Phase I survey had subsumed almost the entire addition within 11MO841 (Figure 5-1). The controlled surface collection identified three distinct artifact clusters within the addition which were designated as 11MO889, 11MO890, and 11MO891 (Figure 5-11).

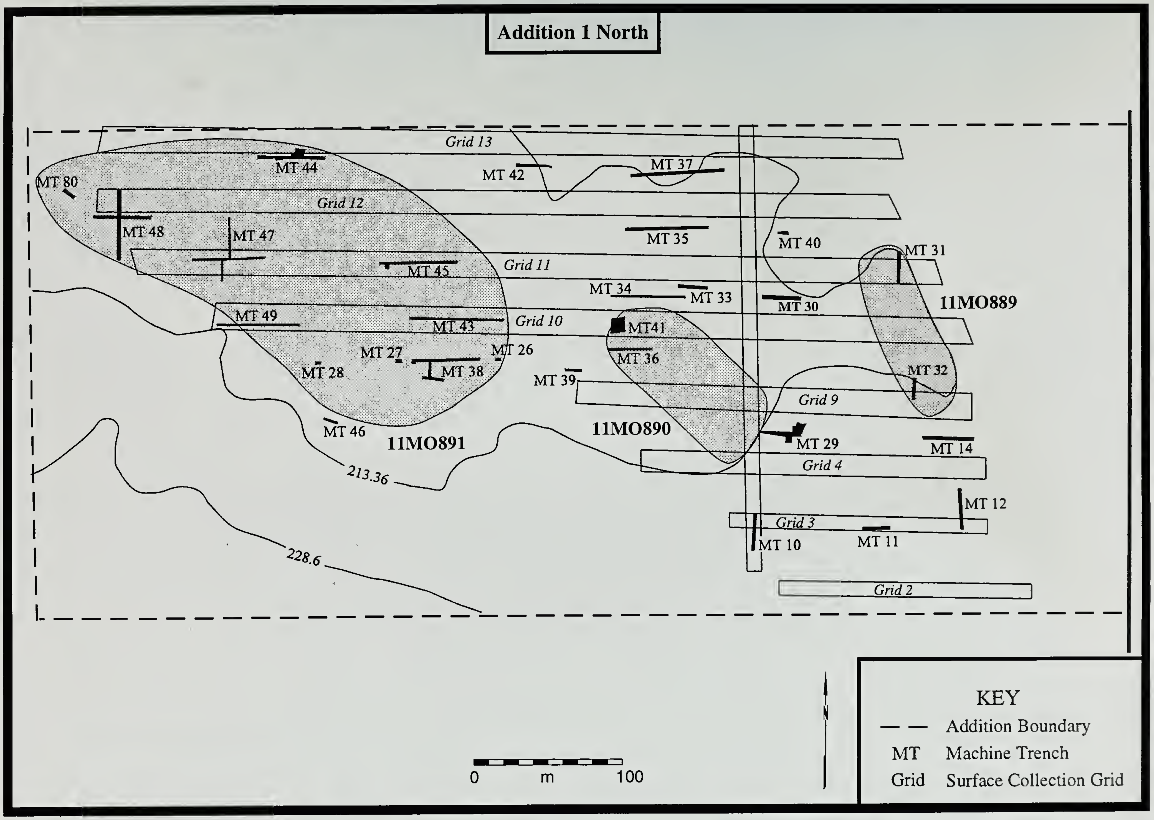

Figure 5-11. Collection Grids, Machine Trenches, and Site Areas in Addition 1 North.

11MO889

This site previously had been incorporated as part of 11MO841 (Wells and Burns 1993). It is located on the broad upland ridge along the eastern boundary of the Valmeyer relocation parcel (Figure 5-11). The site itself was located within a wheat field at the easternmost extent of a prominent knoll, with a number of sinkholes present to its north. Materials attributed to this site were found at the eastern ends of Grids 9, 10, and 11. Based on the controlled surface collection, site dimensions of 120 m north-south by 50 m east-west were defined, yielding an estimated site area of 6,000 m^2. Surface-collected artifacts from the site include a number of biface fragments and more than 300 pieces of lithic debitage. Artifact density was moderate, at .55 per ten square meters. Two machine trenches (31 and 32) were placed at the south and north ends of the site areas, respectively, from which seven artifacts were recovered (Figure 5-11). The two trenches exposed 78 m^2 within the site. No features were identified in either trench, and all artifacts from the machine trenches were recovered from plow zone contexts. Based on the lack of intact features and artifacts from sub-plow zone contexts, it was recommended that this site is not eligible for listing in the National Register of Historic Places. No further work was conducted at 11MO889.

In all, 329 artifacts were recovered from the controlled surface collection and machine trench excavations. Of this total most (n=303, 92 percent) are various categories of lithic debitage. Lithic debitage from this site includes cores (n=11), primary flakes (n=14), secondary flakes (n=64), tertiary flakes (n=56), broken flakes (n=86), and shatter (n=72). Forty-four of the flakes had been utilized. Few chipped-stone tools were found (n=13, 4 percent). Most common are thick bifaces (n=8), with single examples of rough and thin bifaces also present, as are three formally retouched flakes. None of the bifaces is temporally diagnostic. Ground-stone tools from the site include two hammerstones, an abrader, and a pitted cobble. Other artifacts include six pieces of fire-cracked rock and three unmodified chert cobbles. As no temporally diagnostic artifacts were recovered, a period of occupation could not be determined for 11MO889.

11MO890

Site 11MO890 is located on a gentle northwest to southeast-trending slope of the broad upland ridge that is present along the eastern border of the Valmeyer relocation parcel (Figure 5-7). The site is located in a wheat field in the approximate center of the addition (Figure 5-11). Previously, this site had been included as part of 11MO841 (Wells and Burns 1993). Artifacts associated with this site were found in four surface collection grids (4, 8, 9, and 10) (Figure 5-11). Based on the controlled surface collection, site dimensions of 120 m northwest-southeast by 50 m northeast-southwest were defined, yielding a site area of approximately 6,000 m^2. The site contains a dense concentration of artifacts (2.17 per 10 m^2), of which twenty bifaces and more than 1,000 pieces of lithic debitage were collected. Three machine trenches were excavated in the site area: Machine Trench 29 at its southeast end, and Machine Trenches 36 and 41 at the northwest end (Figure 5-11). A total of 136 m^2 was excavated in the three trenches. No features were located within the three trenches, and all artifacts found during excavation were recovered from plow zone contexts. Based on the lack of intact features and artifacts from sub-plow zone contexts, it was recommended that this site is not eligible for listing in the National Register of Historic Places. No further work was conducted at 11MO890.

The controlled surface collection yielded an assemblage of 1,355 prehistoric lithic artifacts. No artifacts were recovered from the machine trenches excavated in the site area. The majority of the lithics are classified as various debitage categories (n=1,261, 97 percent). The lithic debris includes cores (n=25), primary flakes (n=66), secondary flakes (n=252), tertiary flakes (n=249), bifacial

thinning flakes (n=12), broken flakes (n=379), blades (n=2), and shatter (n=276). A total of 208 flakes were utilized. Chipped-stone tools account for four percent of the assemblage (n=48). These include rough (n=5), thick (n=16) and thin (n=2) bifaces, wedges (n=2), and single examples of a chopper, an axe (Figure 5-12, a), a perforating tool, an end scraper, and a side scraper. The axe is approximately 120 cm long, 61 cm wide, and 31 cm thick. Eighteen retouched flakes also were identified. Hammerstones include 12 ground-stone forms and three chert hammers. Other ground-stone tools include a pitted cobble and a grinding slab/metate. Miscellaneous artifact types include fire-cracked rock (n=14), unmodified chert cobbles (n=14), and a single piece of hematite.

While no temporally diagnostic artifacts were found on site, three projectile points were recovered adjacent to the defined 11MO890 site area (Figure 5-12). One is the basal portion of an Etley point that was recycled into a hafted end scraper (Figure 5-12, b). Etley points date to the Late Archaic period (Justice 1987). The other is a fragment of the base and corner notch of a projectile point (Figure 5-12, c). Due to its fragmented condition, no type could be positively identified, although it is possible that this fragment represents a portion of a Lowe Cluster or Snyders Cluster point (Justice 1987). This would indicate an early Middle Woodland through early Late Woodland time range. Both point fragments are made of Burlington chert. A third projectile point was found off-site, 20 m east of the 11MO890 site boundary (Figure 5-12, d). This projectile point was assigned to the Lowe Flared Base type, dating to the Middle Woodland period (Justice 1987).

11MO891

Site 11MO891 was located on a gently rolling upland ridge in the approximate center of the Valmeyer relocation parcel (Figure 5-7). The site was within a wheat field. A farm complex was located along the southern border of the site area. A steep tree-covered drainage is south of the site area while a sinkhole is present along the southwest border. Previously, this area had been included as part of 11MO841 (Wells and Burns 1993).

Four techniques were used to investigate 11MO891. A controlled surface collection was conducted across much of the site area, and postholes were excavated within the farm complex. The results of the posthole excavations at this site have been discussed in a previous section of this chapter. These two methods were used to define site limits and select areas for machine-trench excavations. Subsurface integrity was investigated through machine-trench and deep trenching excavations. The results of the deep trenching along the southern site boundary in Machine Trenches 26, 27, and 28 have been discussed in a previous section of this chapter. Finally, several identified features were documented and two were partially excavated. Based on the controlled surface collections and posthole tests, site dimensions of 300 m east-west by 180 m north south, or 5.4 ha, were defined (Figure 5-11). Ten machine trenches were excavated, totaling 797 m^2. Artifact density within this area was .50 per ten square meters. During the machine trench excavations eight features (Features 9, 10, 11, 13, 14, 15, and 19) and a potential midden deposit (Feature 12) were identified. Based on the presence of intact subsurface features, this site was recommended as eligible for listing in the NRHP, and Phase III mitigation of the site area was recommended. The results of the Phase III mitigation of 11MO891 comprise Volume 3 of this report.

Feature 9 was identified during the excavation of Machine Trench 44 (Figure 5-11). Upon identification, this feature was mapped, a sketch map was drawn, and an artifact sample recovered. The feature consists of a dark rectangular stain interpreted as a house with possible internal features including pits and wall trenches also visible (Figure 5-13). Feature 9 measured 255 cm north-south by 480 cm east-west. Upon completion of mapping and collection of an artifact sample, plastic was placed over the feature and it was covered with soil. This feature was

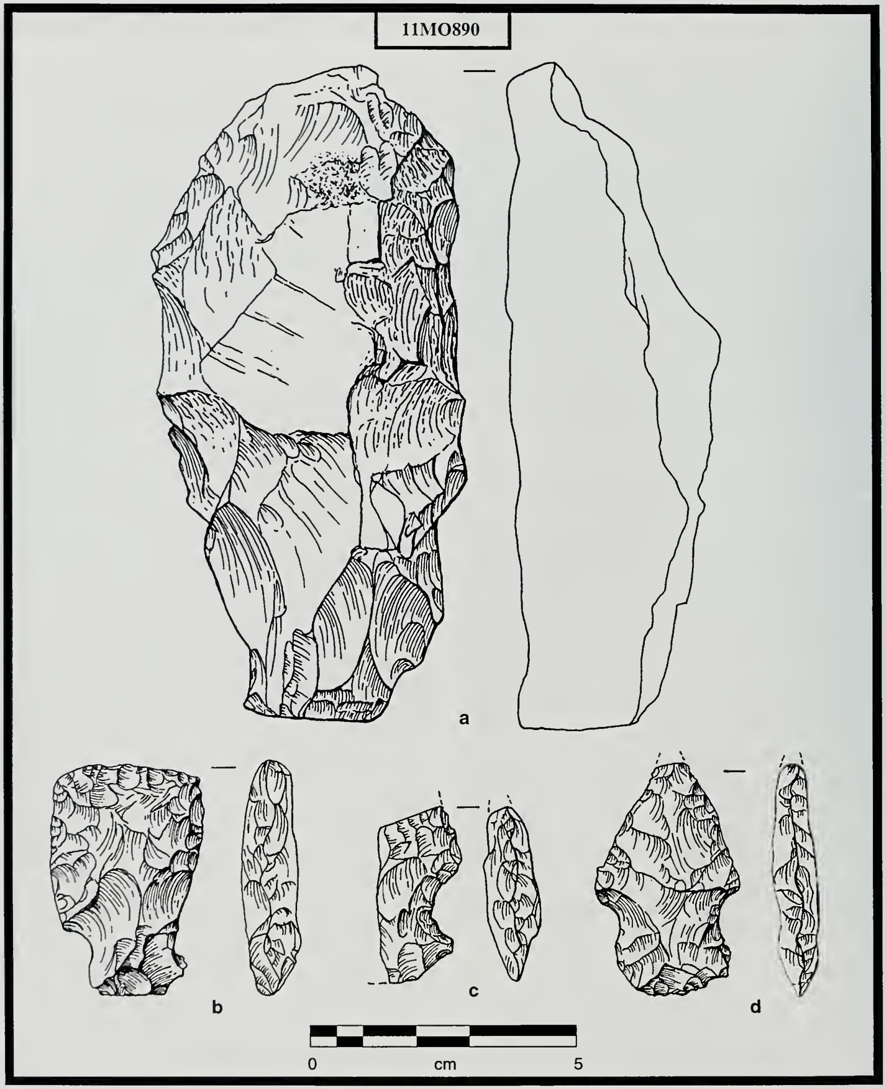

Figure 5-12. Projectile Points and Axe from the Vicinity of 11MO890: a, Chert Axe; b, Reworked Etley; c, Possible Lowe Cluster or Snyders Cluster; d, Lowe Flared Base.

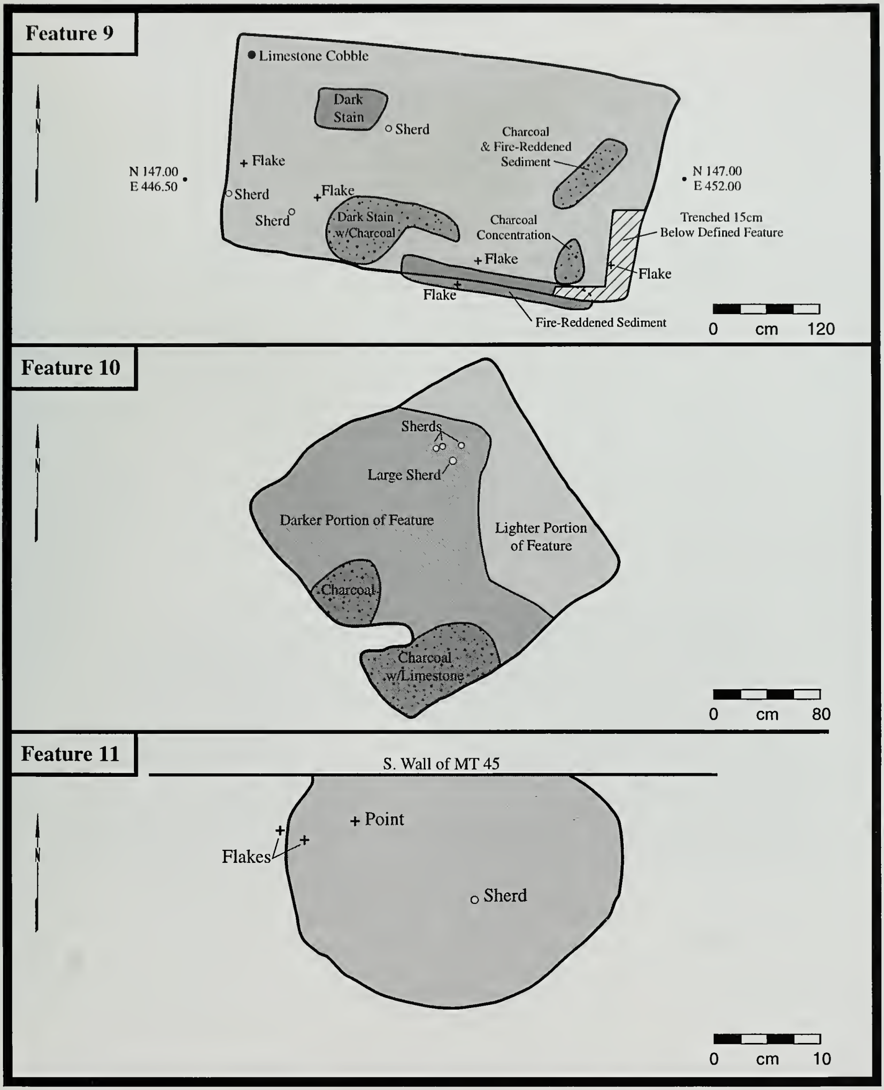

Figure 5-13. Plan View of Features 9, 10, and 11.

excavated during the Phase III mitigation of 11MO891 as Feature 9/158 (see Volume 3 of this report). Also identified in Machine Trench 44 was Feature 10 (Figure 5-11). Like Feature 9, it was mapped using a total station, a sketch map was made, and an artifact sample recovered. Feature 10 is a dark almost square stain also interpreted as a house (Figure 5-13). It measured 230 cm northwest-southeast by 220 cm northeast-southwest. Upon completion of mapping and the collection of an artifact sample, plastic was placed over the feature, and it was then covered with soil. This feature was excavated during the Phase III mitigation of 11MO891 as Feature 10/157 (see Volume 3). Feature 11 was identified in Machine Trench 45, located roughly within the center of the site area (Figure 5-11). This feature is a circular pit measuring 30 cm in diameter with a total depth of approximately 20 cm (Figure 5-13). The north half was excavated first and a vertical profile was drawn. The pit contained a single fill zone of brown (7.5YR4/4) silty loam that was fire-reddened near the base of the feature. The second half of the feature was then excavated. Features 13, 14, and 15, uncovered in Machine Trench 44, were not excavated during the Phase II investigations (Figure 5-11). The location of each feature was mapped using a total station, a sketch map was made, and plastic was placed over the features which were then covered with soil. Features 13 and 14 were pit features while Feature 15 was an unidentified dark stain (Figure 5-14). These features were assigned new numbers during the Phase III mitigation excavation (see Volume 3).

A possible burial feature identified at 11MO891, Feature 19, was located in Machine Trench 80 along a ridge in the northwest portion of the site area (Figure 5-11). The feature was identified as a 170 cm east-west by 60 cm north-south stain (Figure 5-14). Feature fill, a light yellowish brown (10YR6/4) silt loam, was only slightly darker than the surrounding soil. Poorly preserved bone, prehistoric ceramics, and chert flakes were found on the surface. The location of this feature was mapped using a total station, a sketch map was made, and an artifact and bone sample recovered. The feature was then covered with soil. Kristin Hedman (University of Illinois, Illinois Transportation Archaeological Research Program) interpreted the badly decomposed bone as human, possibly metacarpal fragments, indicating that this feature was probably a human burial. This feature was later excavated during the Phase III mitigation of 11MO891 (see Volume 3 of this report).

The final feature defined at 11MO891, Feature 12, has been discussed previously in the section of this chapter detailing the results of deep trenching in sinkholes. Feature 12 is what appeared, at the time of the Phase II investigations, to be an intact midden deposit located within the sinkhole along the southwest portion of the site area. Machine Trench 47 was excavated in the sinkhole (Figure 5-11), and the midden-like deposit was identified beneath 90 cm of post-settlement alluvium (Figure 5-5). Beneath the post-settlement alluvium is a 5–20-cm thick, irregular, layer of dark brown (10YR3/3) silt loam that contained charcoal, lithic debris, and prehistoric ceramic sherds. Following this is a 60-cm thick zone of dark yellowish brown (10YR3/4) silt loam that contained few artifacts.

A total of 2,722 prehistoric and historic artifacts was recovered from controlled surface collections and machine-trench, feature, posthole, and test-unit excavations at 11MO891. Most of this material (n=2,134, 78.5 percent) was found during the controlled surface collection. Artifacts from the machine trenches comprise 9 percent of the assemblage (n=244), feature excavations, 6 percent (n=163); test unit excavations, 4 percent (n=118); and posthole excavations, 2 percent (n=61) of the assemblage. Prehistoric lithics account for 97 percent of the total (n=2,642), prehistoric ceramics and daub are 2 percent of the total (n=53), and historic artifacts account for 1 percent of the total (n=26). One piece of non-human bone also was found.

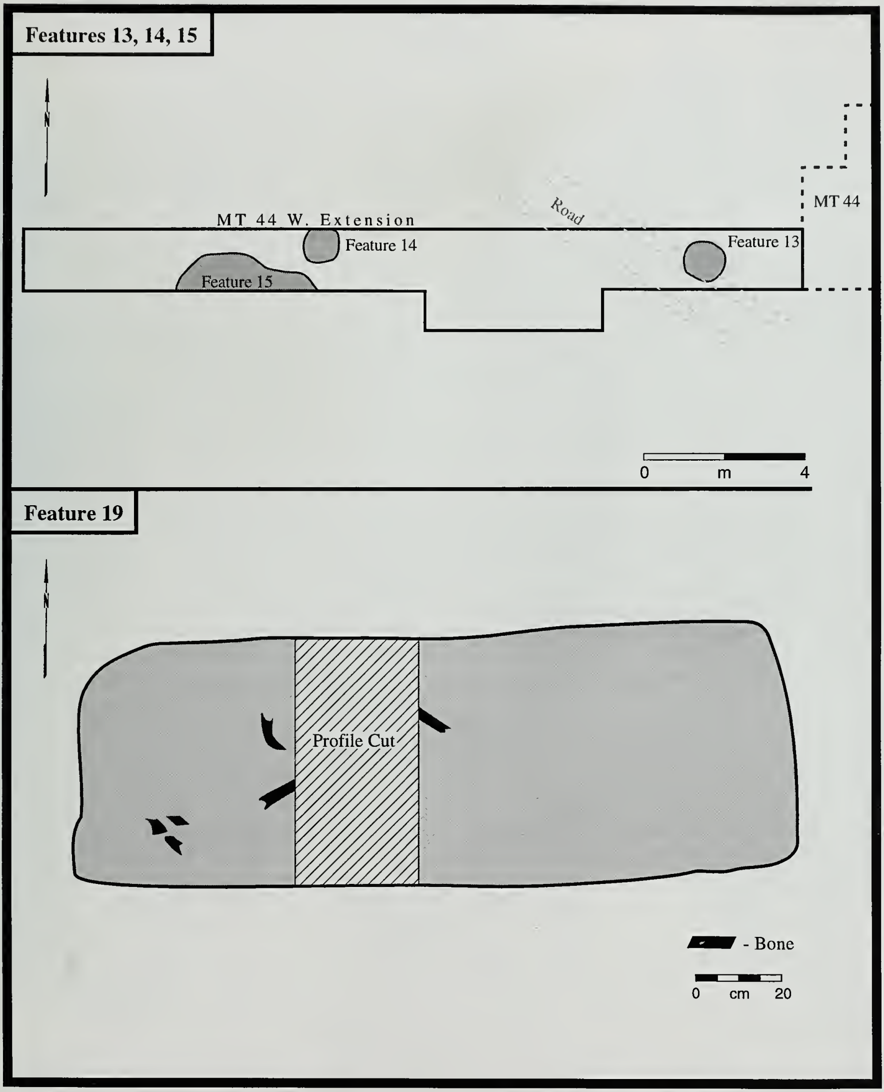

Figure 5-14. Plan View of Features 13, 14, 15, and 19.

Lithic debitage comprises 92 percent (n=2,429) of the overall lithic assemblage. The debitage includes cores (n=39), primary flakes (n=39), secondary flakes (n=131), tertiary flakes (n=281), bifacial thinning flakes (n=22), broken flakes (n=635), bipolar flakes (n=4), shatter (n=1,268), and blades (n=10). Of these, 55 flakes evidenced use-wear. Chipped-stone tools account for 3 percent of the prehistoric lithic assemblage, and include rough (n=11), thick (n=10), and thin (n=8) bifaces, projectile points (n=5), end scrapers (n=4), perforators (n=2), an unidentified uniface fragment, and a wedge. In addition, 31 retouched flakes were identified. Ground-stone artifacts comprise 1 percent of the prehistoric lithics. Most numerous are hammerstones (n=19). Also identified in this subassemblage are pitted cobbles (n=3), tested cobbles (n=3), and single examples of a nutting stone, an unmodified nonchert cobble, an abrader, and an axe (Figure 5-15, a). The axe is 90 cm long, 61 cm wide, and 40 cm thick. It is ungrooved and made of a green metamorphic rock. Other lithic material potentially associated with the prehistoric occupation of the site includes fire-cracked rock (n=46), unmodified limestone fragments (n=11), unmodified chert cobbles (n=51), and hematite (n=2).

Ceramics were recovered from both surface and excavated contexts at 11MO891. In all, 44 sherds were found (Table 5-5). In addition, eight pieces of daub/burned clay weighing 9.3 g and five sherdlettes weighting 2.2 g also were found. Sherdlettes are those ceramics that passed through a 7/16-inch geological sieve and were counted and weighed but not further analyzed.

Five sherds and one sherdlette were recovered from the surface. The sherds consist of one unidentified plain rim tempered with shell and grog, one cordmarked grog-tempered body, one eroded limestone-tempered body, one eroded grog-tempered body, and one incised grog-tempered body. The incised sherd is too small to identify to a named type. Twenty-two sherds and three pieces of daub/burnt clay were recovered from six features. Feature 9, a possible house, contained two cordmarked shell-tempered bodies, one plain body tempered with shell and grog, one smoothed cordmarked limestone-tempered body, and one cordmarked grog body. Recovered from Feature 10, also a possible house, were six limestone-tempered sherds (one red-slipped body, two eroded bodies, one cordmarked body, and two cordmarked rims). One rim is from a Type 3 bowl with an orifice diameter of 44 cm (Plate 5-1, a-b). Type 3 bowls, as defined in Kelly et al. (1990), are characterized by outslanted, outcurved rims. The second rim is probably from the same vessel. Six sherds were recovered from Feature 11, a circular pit, including one cordmarked limestone-tempered body, three plain shell-tempered bodies, one cordmarked shell-tempered body, and one plain shell-tempered rim. The rim is from a Sand Prairie phase angled-rim jar (Plate 5-1, c). Feature 12, a possible midden deposit in the sinkhole, contained three sherds: two eroded limestone-tempered bodies and one cordmarked rim with shell and grog temper. This rim is from a Type 3 bowl or plate (Plate 5-1, d). Continuous rounded-stick decoration is present on the superior surface of the lip. Finally, Feature 19, the burial feature, contained one smoothed cordmarked limestone-tempered body sherd. In addition, five machine-excavated trenches contained 17 sherds, three sherdlettes, and one piece of daub/burnt clay. Recovered from Machine Trench 44 were three limestone-tempered body sherds, one of which is red slipped and the others, eroded. Machine Trench 47 contained two eroded grog-tempered bodies, one eroded grit-tempered body, one cordmarked limestone-tempered body, one cordmarked body with limestone and shell temper, one cordmarked shell-tempered body, and two eroded shell-tempered bodies. Three cordmarked body sherds tempered with limestone and shell were found in Machine Trench 49. Machine Trench 80 contained three limestone-tempered body sherds, one of which is plain and the others, eroded.

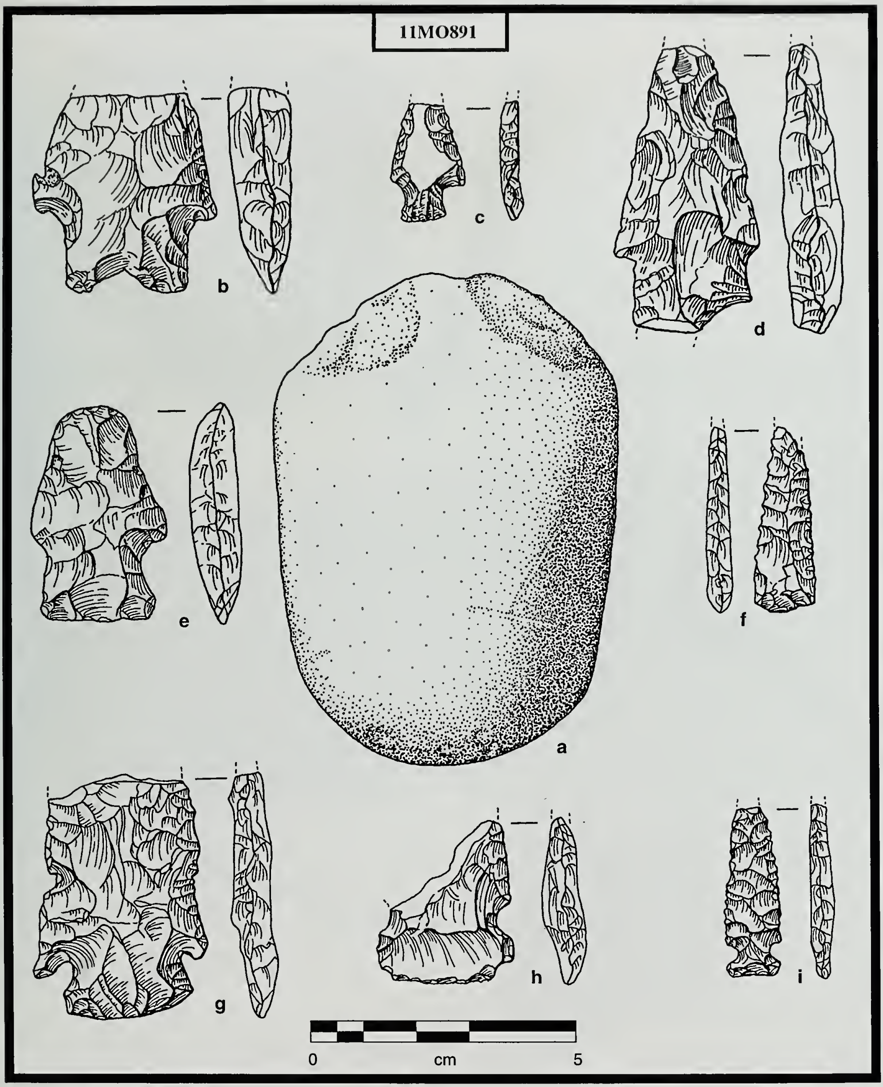

Figure 5-15. Projectile Points and Axe from 11MO891: a, Ground-Stone Axe; b, Stanley Stemmed; c, Merom Expanding Stemmed; d, Saratoga Parallel Stemmed; e, Baker's Creek; f, Triangular; g, Kirk Corner Notched; h, Raddatz Side Notched; i, Sequoyah.

Table 5-5. Selected Attributes of Ceramics from 11MO891.

Surface Treatment	Limestone		Grog		Grit		Lime/ Shell		Shell		Shell/Grog	
	No.	Wt. (g)	No.	Wt. (g)	No.	Wt. (g)	No.	Wt. (g)	No.	Wt. (g)	No.	Wt. (g)
Plain	1	282.4	0	0.0	0	0.0	0	0.0	4	160.9	2	15.1
CM	5	143.5	2	8.9	0	0.0	4	16.4	4	29.2	1	47.6
SMCM	2	133.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
RS	2	10.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Incised	0	0.0	1	2.0	0	0.0	0	0.0	0	0.0	0	0.0
Eroded	9	24.7	3	7.6	1	0.6	0	0.0	3	6.3	0	0.0
Totals	19	594.9	6	18.5	1	0.6	4	16.4	11	196.4	3	62.7

Note: CM is cordmarked; SMCM is smoothed cordmarked; and RS is red slipped.

Both the prehistoric projectile points, the axe, and the prehistoric ceramics are to some extent temporally diagnostic. Four of five diagnostic projectile points were found on the surface during either the controlled surface collection or machine-trench excavations (Figure 5-15, b-f). As a group, these points indicate that 11MO891 was occupied from the Middle Archaic period through the Mississippian period. A single Middle Archaic period projectile point was recovered during the controlled surface collection (Figure 5-15, b). This point has been identified as a Stanley Stemmed point (Justice 1987). Two potentially Late Archaic period projectile points also were identified (Figure 5-15, c-d). A Merom Expanding Stemmed point was found during the excavation of a machine trench while a Saratoga Parallel Stemmed point was found on the surface (Justice 1987). The latter point type dates as late as the Early Woodland period (Justice 1987). One projectile point dating to the Middle Woodland and Late Woodland periods, a Baker's Creek point (Justice 1987), was recovered during the controlled surface collection (Figure 5-15, e). The final projectile point is an elongated triangular point that dates to the Late Woodland or Mississippian periods (Figure 5-15, f) (Justice 1987). It was found during the excavation of the north-half of Feature 11. Only one rim from the Phase II assemblage at 11MO891 can be attributed to a single phase. This is the angled-rim jar from Feature 11 that is characteristic of the Sand Prairie phase. Attributes of several other sherds such as shell temper and red slip would suggest that the assemblage does not predate ca. A.D. 900, or the George Reeves phase. Only the rim-decorated shallow bowl or plate from Feature 12 is typically associated with earlier Emergent Mississippian (i.e., Dohack or Range) ceramics.

A number of other projectile points were found just east of 11MO891 (Figure 5-15, g-i). A single projectile point from the controlled surface collection tentatively has been identified as a Kirk Corner Notched point (Figure 5-15, g). Kirk Corner Notched points date to the Early Archaic period (Justice 1987). Another projectile is a basal fragment of a Raddatz Side Notched point (Figure 5-15, h). Raddatz projectile points date to the Middle Archaic period (Justice 1987). The final projectile point, found northeast of the site area, is a Sequoyah point (Figure 5-15, i). Sequoyah points generally date to the Mississippian period (Justice 1987).

The historic artifacts from 11MO890 include coal cinders/slag (n=19), concrete fragments (n=2), flat glass (n=2), brick fragments (n=2), a tar ball, and a wire-cut tack. Little of this material is temporally diagnostic, and it is no doubt associated with the historic farmstead located south of the site area.

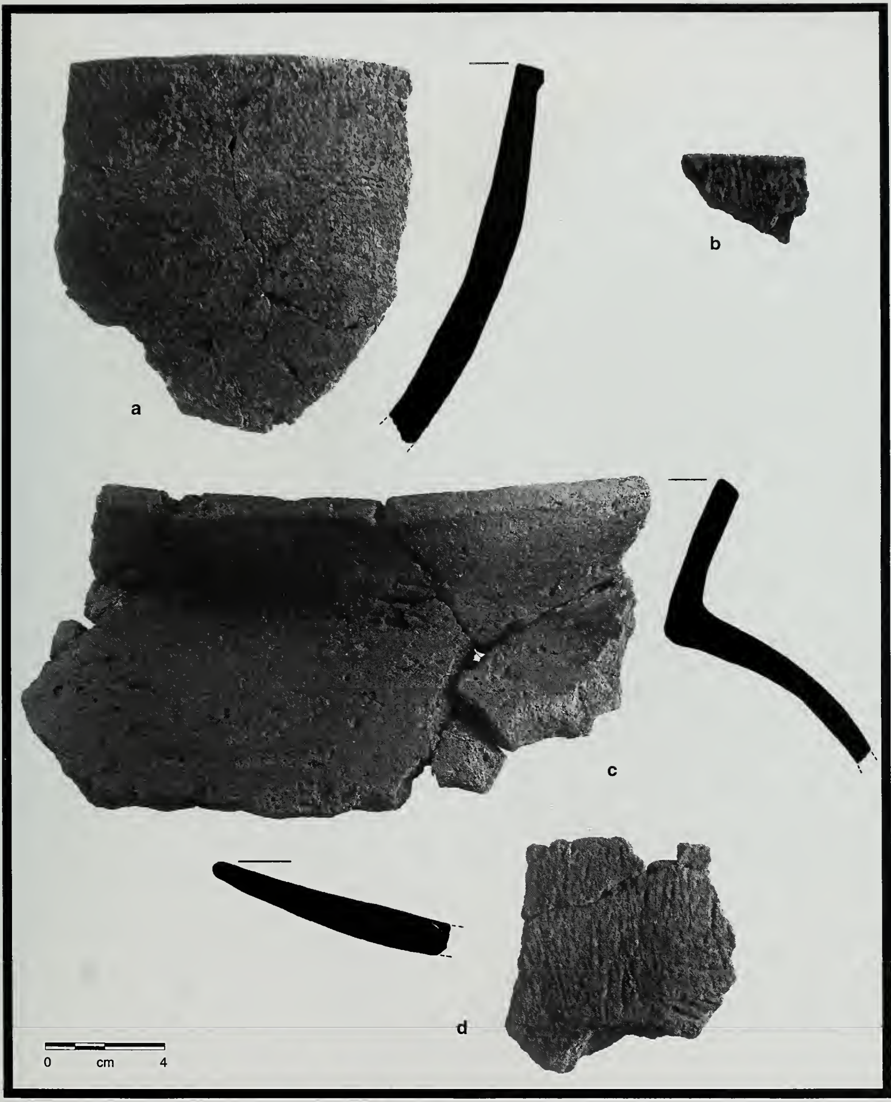

Plate 5-1. Vessel Types from 11MO891: a-b, Type 3 Bowl (same vessel); c, Sand Prairie Angled Rim Jar; d, Type 3 Bowl or Plate.

Addition 2

Addition 2 is located at the extreme southwest portion of the Valmeyer relocation parcel (Figure 5-7). The addition consists of 140 acres covering one large east-west trending upland ridge and three smaller, constricted upland ridges. To the south of the addition is Dennis Hollow while the upland ridges are bordered on all sides by steep drainages that either trend toward the bluff line and the Mississippi River floodplain or empty into Dennis Hollow. The smaller ridges are connected to each other or the larger upland ridge by narrow ridge saddles. At the time of investigation the area was planted in wheat, and the surrounding drainages and slopes were tree covered. The Phase I investigations had identified four sites within this parcel: 11MO479 and 11MO480 located along the extreme western and southern boundaries of the addition; 11MO879 along the northern boundary of the addition; and 11MO841 on the large upland ridge along the eastern boundary of the addition (Figure 5-1). As well, one previously unrecorded site, 11MO885, was identified during the Phase II investigations on a ridge spur to the south of 11MO841 (Figure 5-7). Four gridded collection areas, 16 through 19, were established within the addition, all of which were placed across the large upland ridge (Figure 5-2). The smaller ridges to the west, on which sites 11MO479, 11MO480, and 11MO879 are located, were not investigated during the Phase II fieldwork since these sites previously had been recommended as not eligible for listing in the NRHP (Wells and Burns 1993).

11MO841

Site 11MO841 originally had been defined as a circular prehistoric lithic scatter measuring 80 m in diameter by McNerney (1989). The site was interpreted at that time as representing a prehistoric lithic workshop. As discussed above, Wells and Burns (1993) suggested an expansion of area associated with this site number to almost 179 ha (Figure 5-1). The controlled surface collection strategy employed during the Phase II testing project refined the site dimensions to a triangular wedge-shaped area associated with the original site area. The new site area encompassed maximal dimensions of 300 m southwest-northeast by 125 m northwest-southeast, or a site area of approximately 3.75 ha. Artifacts were found within Grids 16, 17, 18, and 19 (Figure 5-16). Site 11MO841 has a moderate artifact density at .60 per 10 m^2. The site, as defined here, is located at the crest and along a gentle south-facing slope of an upland ridge. This ridge was planted in wheat at the time of the Phase II investigations. To both the south and north are deeply dissected tree-covered ravines. To the northeast of the site area is a sinkhole. Thirteen machine trenches were excavated across the site area, totaling 1,176 m^2 (Figure 5-16). One of these, Machine Trench 62, was excavated in the sinkhole adjacent to the site area and has been discussed previously. The machine trench excavations resulted in the identification of intact prehistoric subsurface pit features within the site area. Three features were partially excavated. The trench excavated in the sinkhole yielded artifacts to 2 m below surface. Based on the presence of intact subsurface features, this site was recommended as eligible for listing in the NRHP, and Phase III mitigation of the site area was recommended.

Feature 16 was identified within Machine Trench 52 in the southern portion of the site. The feature was bisected to obtain a vertical profile. This feature is a circular pit measuring 80 cm in diameter and 50 cm in depth (Figure 5-17). Feature fill consists of a single zone of yellowish brown (10YR5/4) silty clay with charcoal flecks. Artifacts (n=68) consist mainly of chert debitage. These include secondary flakes (n=1), tertiary flakes (n=14), broken flakes (n=14), shatter (n=33), fire-cracked rock (n=2), unmodified limestone (n=2), a piece of burnt clay, and a grooved axe (Figure 5-18). The axe is fully grooved and made of a greenstone. It measures 116 mm long, 84 mm wide, and 26 mm thick. Feature 17 is a somewhat circular shallow pit feature measuring 50 cm in diameter and 7 cm deep (Figure 5-17). This feature, found in Machine Trench 64 in the northern

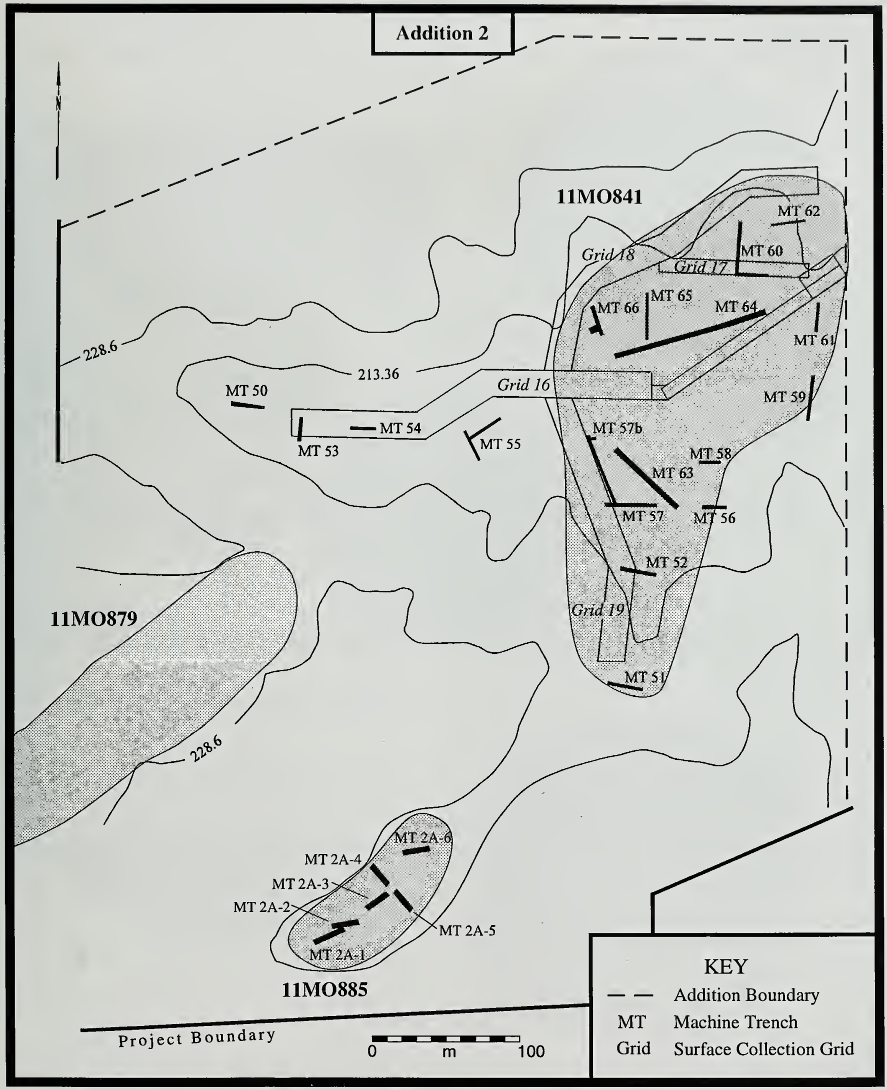

Figure 5-16. Collection Grids, Machine Trenches, and Site Areas in Addition 2.

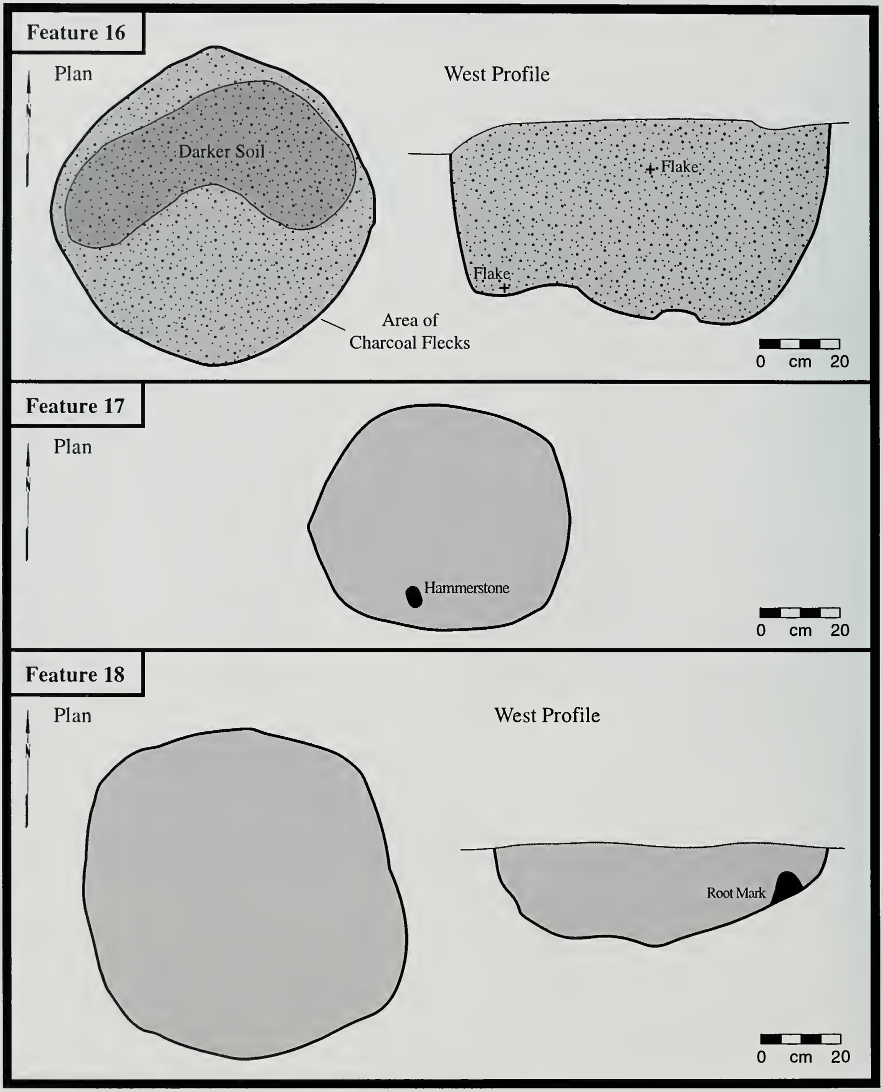

Figure 5-17. Plan View and Profile of Features 16, 17, and 18.

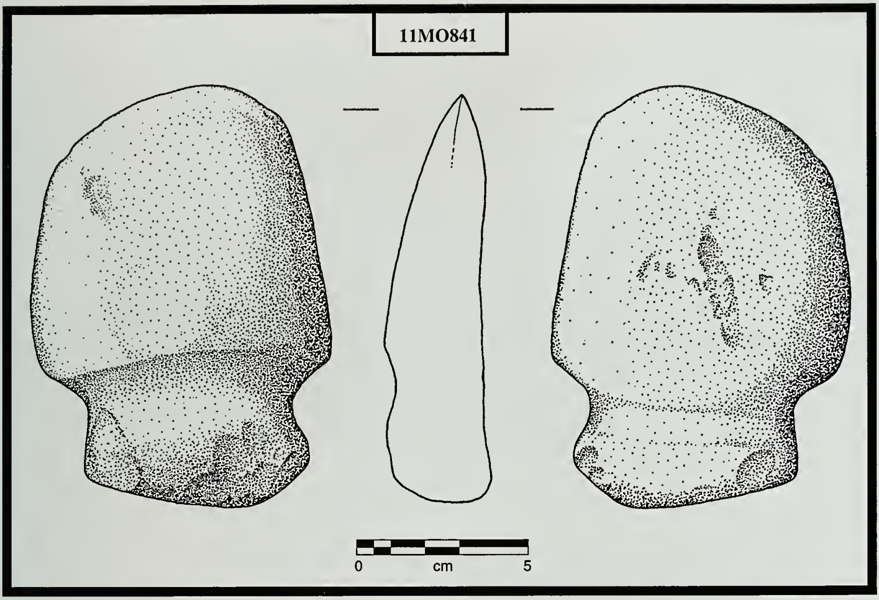

Figure 5-18. Fully Grooved Axe from 11MO841.

portion of the site, was bisected and both halves were excavated. Feature fill, similar to that of Feature 16, consists of a single zone of yellowish brown (10YR5/4) silty clay with charcoal flecks. Twelve artifacts were recovered: eight pieces of shatter, two tertiary flakes, a broken flake, and a hammerstone. Feature 18 also was found in Machine Trench 64 (Figure 5-16). The feature was bisected to obtain a profile. It is circular with a diameter of about 90 cm and depth of 22 cm (Figure 5-17). Feature fill is similar to that of the other two features, consisting of a single zone of yellowish brown (10YR5/4) silty clay with charcoal flecks. Seventeen artifacts were recovered from this feature. These include shatter (n=13), secondary flakes (n=2), a tertiary flake, and a piece of burnt clay.

A total of 2,254 artifacts was recovered from the controlled surface collection and machine trench excavations (excluding material found in features). Of these, 2,166 (96 percent) are prehistoric artifacts while 88 (4 percent) are historic artifacts. Most of the artifacts were recovered during the controlled surface collection (n=1,730, 77 percent) while the rest (n=524, 23 percent) were found during the excavation of a number of machine trenches. Within the overall assemblage chert flaking debris is most common (n=1,960, 86 percent). The debris includes cores (n=46), primary flakes (n=67), secondary flakes (n=145), tertiary flakes (n=241), bifacial thinning flakes (n=14), broken flakes (n=305), bipolar flakes (n=2), shatter (n=1,136), and blades (n=4). Of these, 42 flakes had traces of utilization.

Thirty-eight chipped-stone tools were recovered. These include rough (n=5), thick (n=8), and thin (n=9) bifaces, nondiagnostic projectile point fragments (n=7), two perforators, and single examples of an end scraper, a wedge, and an unclassified uniface. In addition, four retouched flakes were recovered. Ground-stone artifacts include hammerstones (n=14), cobbles (n=11), and a single pitted cobble. Other prehistoric artifacts found include fire-cracked rock (n=14), unmodified chert cobbles (n=126), and two pieces of burnt clay.

A few historic and possibly historic artifacts also were found at 11MO841. These include 65 pieces of limestone, most probably road gravel, 11 rusted unidentified metal fragments, seven pieces of coal cinders/slag, three pieces of concrete, one canning jar lid fragment, and one piece of Bristol-slipped stoneware.

11MO885

Site 11MO885 was not located originally during the Phase I archaeological survey conducted at the Valmeyer relocation parcel. The site area is on a small upland ridge spur surrounded on three sides by steep ravines and connected to a somewhat larger ridge spur located to the northeast by a saddle (Figure 5-7). The spur was forested with no surface visibility. Given that, a controlled surface collection was not feasible. Subsurface testing using screened posthole tests was used in an attempt to locate artifacts as discussed in an earlier section of this chapter. A single prehistoric lithic artifact was found in one posthole test. A backhoe was used to excavate a number of machine trenches to better understand the context of material across this ridge spur. Six machine trenches were excavated on the ridge spur, of which three yielded artifacts (Figure 5-16). A total of 20 prehistoric artifacts was found in both the posthole tests and the machine-excavated units. Based on the location of the positive machine trenches and posthole tests, site dimensions of 120 m southwest-northeast by 40 m southeast-northwest, or an area of approximately 4,800 m^2, was defined. The machine trenches exposed 122 m^2 of site area. Artifacts were found in what is interpreted as an unplowed E horizon. While no features were identified during the machine trench excavations, features are likely present given that an E soil horizon is still intact within the site area. Since this site is outside of the immediate construction area, additional work was not undertaken. But, if this area is to be impacted in the future, Phase II investigations of the site area are recommended to assess its NRHP eligibility.

The artifact assemblage from this site consists of 20 prehistoric lithic artifacts. A single artifact was found in a posthole test while the remaining 19 were recovered during machine trench excavations. Fire-cracked rock (n=12, 60 percent) is the single-most common artifact type. Lithic debitage comprises 35 percent of the assemblage (n=7) and consists of cores (n=2), secondary flakes (n=3), and shatter (n=2). The only formal chipped-stone tool from the assemblage is an unclassified uniface. As no temporally diagnostic artifacts were recovered, a period of occupation could not be determined for 11MO885.

Addition 3

Addition 3 is located along the west-central border of the Valmeyer relocation parcel (Figure 5-7). The addition is approximately 40 acres in area, consisting of a constricted upland ridge bordered on the south, west, and northeast by steep drainages that trend toward the bluff edge and eventually the Mississippi River floodplain. During the Phase I investigations, a single site, 11MO880, was identified on the upland ridge (Wells and Burns 1993) (Figure 5-1). At that time 11MO880 was identified as extending north along the upland ridge outside of the project area. Four collection grids were established in Addition 3 (Figure 5-19). Grid 20 extended from the northeast corner to the northwest corner of the addition and curved to follow the crest of the upland ridge. Three other grids, Grids 21, 22, and 23, extended from Grid 20 to the south to investi-

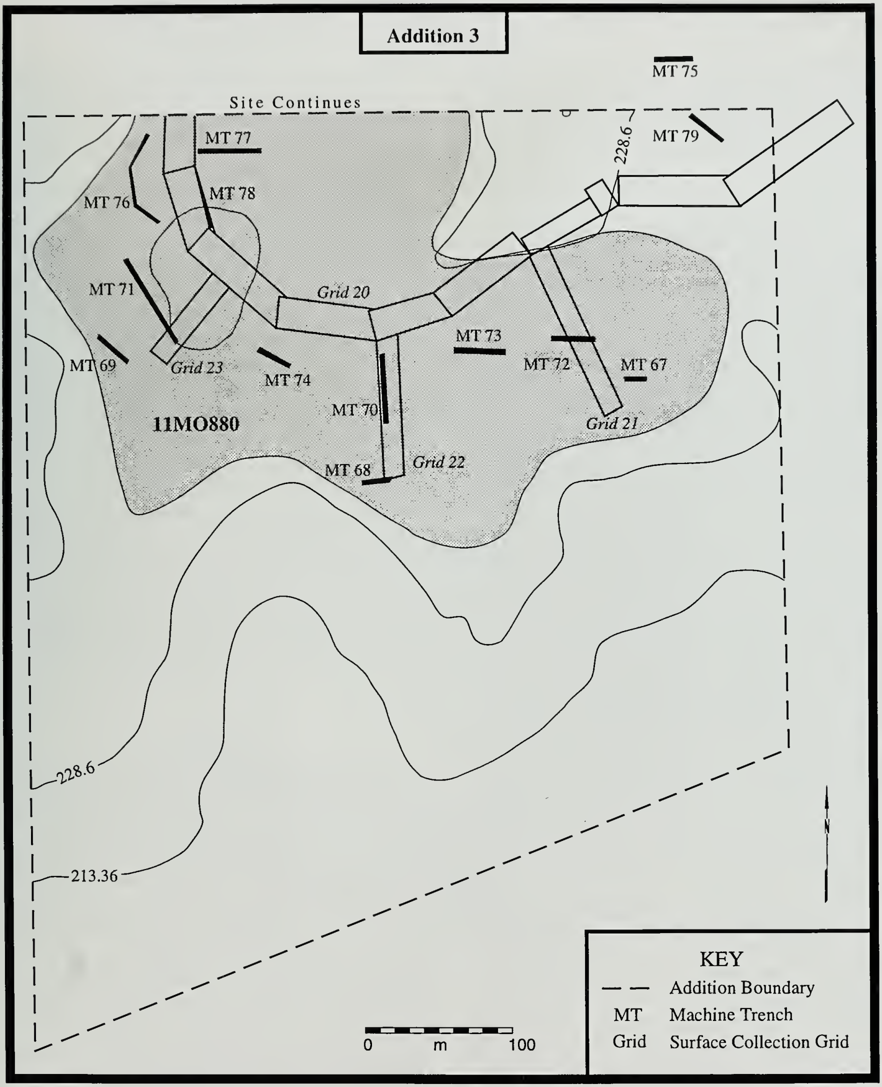

Figure 5-19. Collection Grids, Machine Trenches, and Site Areas in Addition 3.

gate other flat areas of the upland ridge. The controlled surface collection resulted in the relocation of previously identified site 11MO880. This site extends to the north outside of the project area.

11MO880

Site 11MO880 originally was defined during the Phase I archaeological survey of the Valmeyer relocation parcel (Wells and Burns 1993). Early Archaic to Late Archaic projectile points as well as lithic debitage were located at that time. The site is situated on a C-shaped upland ridge in the northwest corner of the relocation parcel (Figure 5-7). Steep forested ravines are present to the south, west, and east while a narrow ridge saddle connects the constricted upland ridge on which 11MO880 is located to a larger upland ridge to the east. Phase I survey of the area indicated that the site extends to the north, outside of Addition 3. That portion of the site was not investigated during this project. Four collection grids were established in this part of the site area (20, 21, 22, and 23) (Figure 5-19). The southern portion of this site has a low artifact density at .08 per 10 m^2. Based on the controlled surface collection and the results of the Phase I survey, 11MO880 has maximal site dimensions of 410 m north-south by 310 m east-west and an area of approximately 12.7 ha. Of this, approximately 7.7 ha are within the project area limits (250 m north-south by 310 m east-west). Artifacts from the controlled surface collection total more than 400 and consist mainly of lithic debris. A total of 11 machine trenches was excavated within the southern portion of 11MO880, exposing almost 494 m^2 of site area (Figure 5-19). No features were identified in the machine trenches, and all artifacts found were recovered from the plow zone. Based on the lack of intact features and artifacts from sub-plow zone contexts, it was recommended that the southern portion of this site was not eligible for listing in the National Register of Historic Places. Given that the Phase I archaeological survey recovered prehistoric ceramics from the northern portion of the site outside of the current project area (Wells and Burns 1993), it is recommended that the northern portion of the site be investigated to determine whether preservational conditions differ. No further work was undertaken at the southern portion of the site.

Artifacts from the controlled surface collection (n=423) and machine trenches (n=180) total 603 pieces. Of this total most are chert debitage (n=514, 85 percent). Chert debitage from the site includes cores (n=13), primary flakes (n=22), secondary flakes (n=80), tertiary flakes (n=116), bifacial thinning flakes (n=2), broken flakes (n=115), and shatter (n=166). A total of 16 utilized flakes was identified in the chert debitage assemblage. Formal chipped-stone tools (n=10, 1.5 percent) include rough (n=3), thick (n=2), thin (n=1), and unclassified (n=2) bifaces, an unclassified uniface, and a retouched flake. None of the chipped-stone tools is temporally diagnostic. Ground-stone tools include two pitted cobbles and one hammerstone. In addition, 43 pieces of unmodified chert cobbles, 25 fire-cracked rock fragments, and eight pieces of limestone were found at 11MO880. As no temporally diagnostic artifacts were recovered, a period of occupation could not be determined for 11MO880.

Addition 4

This addition comprises the northwest corner of the Valmeyer relocation parcel (Figure 5-7). It covers approximately 80 acres and consists of a fairly broad upland ridge at its southern boundary with a narrow ridge extending northward, bisecting the addition. To the east and west of this narrow ridge are steep ravines that drain northward toward the bluff edge and the Mississippi River valley. At the time of investigation, the ridges were planted in wheat while the side slopes and ravines were tree covered. Previous investigations assigned all of the upland ridge areas within this addition to 11MO841 (Figure 5-1) (Wells and Burns 1993). Five controlled surface collection grids were established, four on the southern upland ridge and one along the narrow northward extending ridge (Figure 5-20).

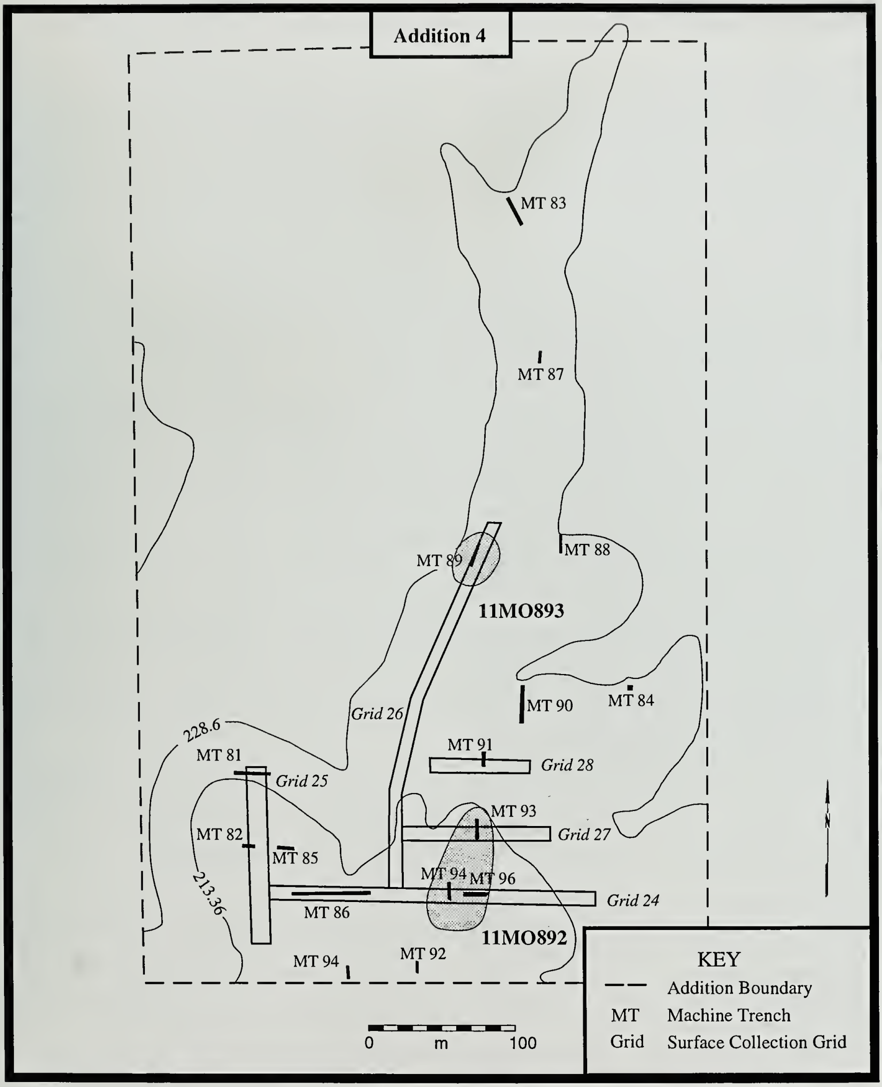

Figure 5-20. Collection Grids, Machine Trenches, and Site Areas in Addition 4.

The five grids were 10–15 m wide and 75–290 m long. In addition, five machine trenches were excavated along portions of the northward extending ridge in areas where a grid collection could not be made. Two discrete artifact scatters, 11MO892 and 11MO893, were identified as a result of the Phase II investigations.

11MO892

Site 11MO892 was defined on a northeast-southwest trending ridge slope of a fairly broad upland ridge along the west-central boundary of the Valmeyer relocation parcel. The site area was originally included in 11MO841 after the Phase I investigations (Wells and Burns 1993). At the time of the Phase II investigations, the area was planted in wheat. Based on the results of the controlled surface collection, site dimensions of 90 m northeast-southwest by 40 m southeast-northwest were defined, yielding an approximate site area of 3,600 m^2. The surface collection resulted in the recovery of 75 prehistoric artifacts (an artifact density of .22 per 10 m^2). Three machine trenches were excavated within the site area with a total of 108 m^2 investigated. No subsurface features were identified during the machine excavation of the trenches, and all artifacts recovered were from plow zone contexts. Based on the lack of intact features or artifacts from sub-plow zone contexts, it was recommended that this site was not eligible for listing in the National Register of Historic Places. No further work was conducted at 11MO892.

The artifact assemblage from 11MO892 consists of 130 prehistoric lithic artifacts, 75 (58 percent of assemblage) of which were found during the controlled surface collection and 55 (42 percent of assemblage) in the machine trench excavations. Most of the artifacts are various categories of chert debitage (n=113, 87 percent). The debitage includes cores (n=2), primary flakes (n=4), secondary flakes (n=11), tertiary flakes (n=17), broken flakes (n=28), and shatter (n=51). Four flakes evidence use wear. Only a single formal chipped-stone tool, a thin biface, was recovered. This biface is not temporally diagnostic. Ground-stone tools also consist of a single item, a pitted cobble. Other material includes five pieces of fire-cracked rock, one piece of sandstone, and nine pieces of limestone. As no temporally diagnostic artifacts were recovered, a period of occupation could not be determined for 11MO892.

11MO893

Site 11MO893 is located near the edge of a north-oriented constricted upland ridge in an area planted in wheat at the time of the Phase II investigations (Figure 5-7). This area had been included as part of 11MO841 by Wells and Burns (1993) (Figure 5-1). Sixteen artifacts were found during the controlled surface collection (an artifact density of .1 per 10 m^2). Maximal scatter dimensions are 40 m north-south by 40 m east-west, for a site area of 1,600 m^2 (Figure 5-20). The one machine trench excavated in the site area exposed a total of 30 m^2 (Figure 5-20). No artifacts were located during the machine excavations. As well, no subsurface features were identified during the machine trench excavations. Based on the lack of intact features or artifacts from sub-plow zone contexts, it was recommended that this site was not eligible for listing in the National Register of Historic Places. No further work was conducted at 11MO893.

Only 16 artifacts were recovered at 11MO893, all prehistoric lithic debitage from the controlled surface collection. The debitage includes secondary flakes (n=5), tertiary flakes (n=3), broken flakes (n=4), and shatter (n=4). As no temporally diagnostic artifacts were recovered, a period of occupation could not be determined for 11MO893.

Addition 5

Addition 5 is an inverted L-shaped area in the northeast corner of the Valmeyer relocation parcel (Figure 5-7). The addition is 95 acres in area, consisting of a broad upland ridge that is oriented north-south. North-trending ravines that drain toward the bluff edge and the Mississippi River valley are present on either side of this ridge. At the time of investigation the upland ridge was covered by wheat while the ravine and side slopes were tree covered. Phase I survey included all of the upland ridge within 11MO841 (Figure 5-1) (Wells and Burns 1993). Two controlled surface collection grids, Grids 29 and 30, were established in this addition during the Phase II investigations (Figure 5-21). Both were 10 m wide. Grid 29 began near the southern boundary of Addition 5 and curved northward following the upland ridge to near the northern boundary of the addition. Grid 30 was oriented eastward to investigate a spur of the upland ridge. In addition seven machine trenches were excavated on ridge spurs or along the edge of the ridge in an attempt to identify additional artifact clusters in areas not surface collected (Figure 5-21). The investigations resulted in the identification of three artifact clusters, designated 11MO894, 11MO895, and 11MO896 (Figure 5-7).

11MO894

This site is located on a narrow north to south-trending ridge in the northeast corner of the Valmeyer relocation parcel. To the east and west of the site area are steep, forested ravines while the ridge itself was an active agricultural field planted in wheat. Karstic sinkhole features are present to the south of the site area. Wells and Burns (1993) originally included this area as part of 11MO841 (Figure 5-1). Surface collected materials were found in Grids 29 and 30 and included one biface fragment and 39 pieces of lithic debris. Based on the surface distribution of this material, maximal site dimensions of 120 m northeast-southwest by 60 m southeast-northwest were defined, yielding an area of approximately 7,200 m^2 (Figure 5-21). Site 11MO894 had an artifact density of .08 per 10 m^2. Four machine trenches, located along a north-south transect at regular intervals, then were excavated at 11MO894 (Figure 5-21). The total area excavated in the four trenches is 136 m^2. Twenty prehistoric lithic artifacts were recovered from these trenches. No features were located during the excavation of these trenches, nor were any sub-plow zone artifacts recovered. Based on the lack of intact features and artifacts from sub-plow zone contexts, it was recommended that this site was not eligible for listing in the National Register of Historic Places. No further work was conducted at 11MO894.

The controlled surface collection and machine trench excavations yielded 60 prehistoric lithic artifacts. Most of this material is chert debitage (n=52, 87 percent). The chert debitage consists of cores (n=1), primary flakes (n=3), secondary flakes (n=5), tertiary flakes (n=8), broken flakes (n=14), and shatter (n=21). One chipped-stone tool was found, a thick biface that is not temporally diagnostic. The ground-stone tool assemblage consists of a single hammerstone. Other artifacts include five pieces of fire-cracked rock and a single piece of limestone. Since no temporally diagnostic artifacts were recovered, a period of occupation could not be determined for 11MO892.

11MO895

This site originally was included with 11MO841 by Wells and Burns (1993) (Figure 5-1). It is located on a small eastward-projecting ridge spur that is connected to a larger, but narrow, north-south trending upland ridge in the northeast corner of the Valmeyer relocation parcel. Steep forested ravines are present north, south, and east of the ridge spur. At the time of investigation the area was planted in wheat. The site was located during a controlled surface collection of Grid 30 (Figure 5-21). The assemblage consists of two historic artifacts and three pieces of lithic debitage. Review of historic plat maps indicates that a farmstead was located in

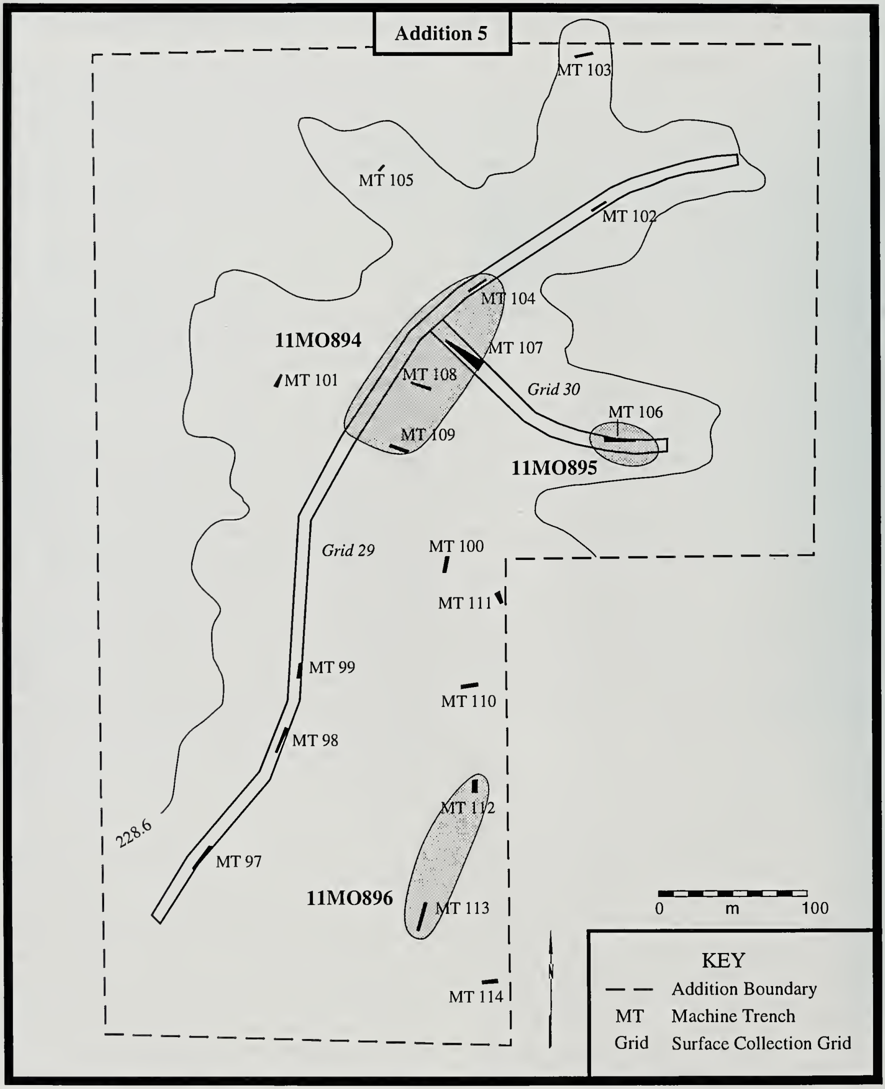

Figure 5-21. Collection Grids, Machine Trenches, and Site Areas in Addition 5.

this area during the late nineteenth century (W. R. Brink and Company 1875; Centennial Atlas Company 1916; George A. Ogle and Company 1901). Material was found in an area measuring 20 m north-south by 40 m east-west, yielding an approximate 800 m^2 site area (Figure 5-21). Artifact density at this site was .13 per 10 m^2. Machine Trench 106, covering a 23-m^2 area, was excavated in an attempt to locate features or sub-plow zone materials, neither of which were found (Figure 5-21). Based on the lack of intact features or artifacts from sub-plow zone contexts, it was recommended that this site was not eligible for listing in the National Register of Historic Places. No further work was conducted at 11MO895.

Land entry dates for this part of the Valmeyer relocation parcel range between 1810 and 1850. A review of historic plat maps indicates that a structure was located in this area as early as 1875, belonging to F. Dappe (W. R. Brink and Company 1875). The structure remained in existence through 1901 when it is noted as belonging to Michael Bunschur (George A. Ogle and Company 1901). By 1916, this parcel once again had been sold, this time to William and Anne Nobbe, who owned adjacent tracts to the southwest (Centennial Atlas Company 1916). No structure is depicted within the parcel at this time, indicating the removal of this house during a 15-year period between ca. 1901 and 1916. The archaeological material collected, while sparse, does not contradict these dates of occupation.

A total of 11 prehistoric and historic artifacts was collected from the 11MO895 site area, all of which were recovered during the controlled surface collection. No artifacts were found in the machine-trench excavations. Three of these are prehistoric artifacts consisting of two pieces of shatter and one broken flake. Six unmodified rocks collected could represent noncultural items or date to either the prehistoric or historic periods. Finally, two historic artifacts were recovered. These consist of single pieces of clear bottle glass and undecorated whiteware. The prehistoric artifacts are not temporally diagnostic, and the historic artifacts are consistent with a late nineteenth- to twentieth-century occupation.

11MO896

Additional machine-trench excavations were placed along the eastern edge of the north-south trending upland ridge within Addition 5 as a controlled surface collection could not be conducted in that area due to poor surface visibility. Artifacts were recovered in two machine-trench excavations on a narrow ridge to the east of a sinkhole and west of the ridge edge. These two trenches, 112 and 113, define the 11MO896 site area (Figure 5-21). Site 11MO896 was located within an agricultural field while the ravine slope to the east is tree-covered. Based on placement of these trenches, site dimensions of 100 m north-south by 30 m east-west were defined, yielding an area of approximately 3,000 m^2 (Figure 5-21). Excavations totaled 54 m^2 in the two machine trenches. A total of 19 prehistoric artifacts was recovered from the plow zone (an artifact density of .06 per 10 m^2). No artifacts were found below the plow zone, nor were any subsurface features located. Based on the lack of intact features and artifacts from sub-plow zone contexts, it was recommended that this site was not eligible for listing in the National Register of Historic Places. No further work was conducted at 11MO896.

Nineteen prehistoric lithic artifacts were recovered during the excavation of machine trenches at 11MO896. Of this total, ten (53 percent) are pieces of debitage consisting of cores (n=3), tertiary flakes (n=2), shatter (n=4), and a broken flake. One chipped-stone tool, a unifacial side scraper, also was recovered. As well, a single ground-stone tool, a hammerstone, was collected. Other material from the trench excavations include four pieces of fire-cracked rock, two pieces of limestone, and a piece of hematite. As no temporally diagnostic artifacts were recovered, a period of occupation could not be determined for 11MO896.

Off-Site Investigations

As discussed in the introduction to this chapter, the results of the Phase I investigations led Wells and Burns (1993) to define a 179-ha area for 11MO841 given the almost continuous, although not uniform, distribution of artifacts in the area. Rather than conduct the Phase II excavations across the entire 179-ha site area, a controlled surface collection was conducted in an attempt to define dense clusters of artifacts where, it was reasoned, there would be a greater likelihood for the existence of intact features or midden deposits. As a result, 11MO841 was divided into 13 separate sites. Eleven of these sites were defined on the basis of concentrations of artifacts identified during the controlled surface collection while two were identified by subsurface testing methods.

The 14 sites investigated during the Phase II fieldwork represent concentrations of artifacts denser than the surrounding area. While artifact density decreased outside of these sites, artifacts were present and collected. Artifacts from the areas outside of the defined sites have been referred to as off-site collections. The off-site collections, documented in Appendix A by provenience, include material from both controlled surface collection grid units and machine trenches. Projectile points found off-site have been discussed above with regard to those sites in closest proximity to their location. As discussed previously in this chapter, machine trenches were excavated in off-site areas. These off-site machine trenches often were placed in locations such as ridge knolls where, based on previous results of fieldwork in southwestern Illinois, archaeological sites may be expected. In addition, these locations often had sparse scatters of artifacts, although not enough in comparison to the defined sites to be accorded site status. In effect, Phase II excavations were conducted at off-site areas in an effort to ensure that no intact subsurface deposits were overlooked. Slightly less than 3,000 m^2 were excavated in off-site areas, and no intact deposits were identified (Table 5-4).

The distribution of artifacts within the Valmeyer relocation parcel has no doubt been caused by a number of factors, both prehistoric and historic in nature. Perhaps easiest to envision and also best documented are the effects of plowing on the horizontal dispersal of artifacts (e.g., O'Brien and Lewarch 1981; Odell and Cowan 1987). The Valmeyer relocation parcel has been plowed for more than 100 years, and this has, no doubt, led to a dispersal of artifacts across the landscape and a consequent blurring of site boundaries, if such a methodological concept can be attributed to prehistoric human behavior. As important, though, is a key attribute of the Valmeyer relocation parcel; easily accessible chert. As discussed in Chapter 3 of this volume, chert was easily accessible within the numerous draws and hollows along the edges of the project area. As Adams argues with regard to the lithic assemblage from 11MO841 in Volume 2 of this report, this ease of access led to an expedient, or nonconservative, use of chert resources. In effect, chert was worked, modified, and used wherever encountered, including both formal loci recognized today by archaeologists as sites and across much of the remainder of the project area. Both processes, one modern and the other prehistoric, have led to the almost continuous, but not uniform, scatter of chert debris across the Valmeyer relocation parcel.

One specimen, an eroded distal end of a human fibula, was found in Addition 1 North, surface collection Grid 3, Row 2, Unit 0. The element is 4.5 mm long and has both a size and density consistent with human fibulae. The surface collection and machine trench excavations conducted in the area failed to locate additional material or mortuary features.

CHAPTER 6.
DISCUSSION AND RECOMMENDATIONS

This section draws together two somewhat disparate, although interconnected, issues: a discussion of the archaeological nature of the sites investigated during the Phase II project and the NRHP recommendations for the sites based on the results of the suite of investigative techniques, both field and laboratory, employed. The first part of this chapter focuses on assessing the data generated by this project in terms of site function and a systemic analysis of the Valmeyer relocation parcel sites. The second part provides a rationale for the NRHP recommendations presented in the previous chapter and summarizes those recommendations.

Discussion

This discussion focuses on a subset of the sites located within the Valmeyer relocation parcel. It attempts to characterize the activities conducted at the sites as well as their role in local settlement systems. The three sites recommended as not eligible for listing in the NRHP by Wells and Burns (1993), 11MO479, 11MO879, and 11MO880, are not considered since no data were obtained from these sites during the Phase II investigations. Likewise, sites 11MO885 and 11MO896 are not considered since the investigative technique used at both, consisting solely of subsurface testing, yields substantially different assemblage profiles due to different recovery biases. Sites 11MO893, 11MO894, and 11MO895 also are not considered since each has a lithic assemblage with fewer than 100 artifacts. Finally, 11MO891 is not considered as it represents the only site at which prehistoric ceramics were recovered. The presence of prehistoric ceramics at 11MO891 indicates this site represents a different period of occupation and perhaps a substantially different site type. With the exclusion of these nine sites, eight sites remain for further analysis.

To aid in the comparison and understanding of settlement function and location of the eight sites selected for analysis, a general biface-production model employed by Morrow (1982) is used. Four ratios have been calculated for the eight sites. The first ratio compares unfinished to finished tools and is a measure of on-site tool use and tool production. Likewise, a comparison of formal tools to expedient tools provides a similar measure. The ratio of shatter to flakes is indicative of the stage of lithic production at a site, with high ratios of shatter to flakes suggesting that early-stage production was more common. Finally, the ratio of bifacial thinning flakes to percussion flakes was calculated. A high ratio of bifacial thinning flakes to percussion flakes indicates that later-stage production was common on site. For convenience, these ratios have been converted into single figures by dividing the numerator by the denominator. Figures greater than 1.0 indicate that the numerator is dominant while figures less than 1.0 indicate that the denominator is dominant (Table 5-6).

For all but two sites, 11MO888 and 11MO841, high ratios of unfinished to finished tools were obtained, although at all sites unfinished tools were as common or more so than finished tools (Table 5-6). Similarly, in all but one case, fewer formal tools are present at the Valmeyer sites than expedient tools (Table 5-6). Site 11MO886 is the single exception, having a high ratio of formal to expedient tools. For the shatter:flake ratio, two sites, 11MO841 and 11MO892, have high ratios (Table 5-6). Two others, 11MO880 and 11MO886, have ratios in the middle of the range, and the other four Valmeyer sites have generally low ratios. In contrast, only one site, 11MO888, has a relatively high ratio of bifacial thinning flakes to percussion flakes (Table 5-6). All other Valmeyer sites have lower ratios.

These ratios suggest that not all of the lithic scatters at Valmeyer are similar in regards to site function. Four points can be raised in this regard. First, with reference to tool manufacture, at most sites the

Table 6-1. Debitage and Chipped-Stone Tool Ratios for Selected Valmeyer Sites.

Site	Unfinished/ Finished Tools	Shatter/ Flakes	Cores/ Flakes	Bif. Thin. Flakes/ Percussion Flakes	Formal/ Expedient Tools
11MO886	3.0	.50	.02	.15	1.21
11MO887	8.0	.36	.04	.01	.90
11MO888	1.0	.34	.02	.47	.24
11MO889	10.0	.33	.00	.00	.21
11MO890	3.3	.29	.03	.04	.15
11MO841	1.8	1.46	.06	.07	.74
11MO880	6.0	.50	.04	.02	.53
11MO892	10.0	.85	.03	.00	.25

emphasis was placed on making blanks and preforms rather than finished tools. This strategy takes advantage of the plentiful chert resources at this locale and may indicate that unfinished tools were traded to other groups or used at different locations. Two sites deviate from this trend, 11MO888 and 11MO841. There, finished tools were almost as common as blanks or preforms. Second, the high ratio of bifacial thinning flakes to percussion flakes at 11MO888 further indicates that, at this site, many of the blanks and preforms were worked into finished tools. That this is not the case at 11MO841 suggests that a different suite of activities was taking place at these two sites. Third, the high proportion of shatter at 11MO841 and somewhat lower proportion at 11MO892 indicate emphasis on early-stage reduction activities and, perhaps more importantly, bipolar reduction techniques. Fourth, all of the sites but one, 11MO886, have fewer formal than expedient tools. Given the predominance of unfinished over finished tools at 11MO886, activities at this site may have been more restricted than at the others, perhaps with a greater emphasis on tool blank and preform production.

These four points indicate that, at most sites, two sets of activities were taking place. Some form of lithic manufacturing was taking place, with plentiful chert supplies being an attraction to prehistoric groups. At most sites, blanks and preforms were made while at 11MO888 these items were further modified into finished tools. At most sites, perhaps aside from 11MO886, a second trajectory of lithic manufacturing also was taking place. This manufacturing trajectory was aimed at producing flakes that could be used as expedient tools—unmodified or minimally retouched tools that then could be used for any number of tasks. This second set of activities is largely unidentified at the Valmeyer sites. But, with the variety of expedient tools and formal tools such as projectile points, scrapers, and wedges found at the sites, no doubt a number of different tasks were undertaken at sites within this locale.

Most of these sites, when compared with the model of Archaic period settlement in southwestern Illinois proposed by Emerson et al. (1986), appear to be examples of residential extractive camps. Residential extractive camps are characterized as being of medium size (ca. .5–2.5 ha) with an overall generalized tool assemblage indicative of a short-term residential occupation but also evidencing a particular specialized emphasis. Residential extractive camps are often associated with pit features. The best example of this site type within those sites analyzed for the Valmeyer locale is 11MO841 where pit features and a fairly generalized assemblage were identified. The specialized activity at these sites was chert gathering and subsequent tool manufacture, common at all sites.

Recommendations

The ultimate goal of the Phase II investigations at the Valmeyer relocation parcel sites was to provide a set of management recommendations for both FEMA and the IHPA. The recommendations were to be based on the determination of NRHP eligibility for each site identified. A second concern was whether human remains were present in the project area. This goal was met by the completion of an IHPA Archaeological Survey Short Report (ASSR) in July 1994 (McGowan 1994) and the subsequent acceptance of the recommendations by the IHPA. Factors taken into account for NRHP eligibility determination included time period represented (especially in regards to the NRHP 50-year rule), presence of intact features or other deposits, the quantity and depositional character of those deposits or features (and hence the likelihood of locating additional intact deposits), and the type of artifacts and other archaeological remains (such as floral or faunal remains) associated with the intact deposits. When these considerations were applied to the sites in the Valmeyer relocation parcel, two were recommended as eligible for listing in the National Register of Historic Places.

As discussed in this chapter, a total of 17 sites has been defined within the Valmeyer relocation parcel (Table 5-7). After the completion of the Phase I investigations, two sites, 11MO479 and 11MO879, were recommended as not eligible for listing in the NRHP (Wells and Burns 1993). Of the remaining 15 sites, 11 were recommended as not eligible for listing in the NRHP based on the results of the Phase II investigations (McGowan 1994) (Table 5-7). Aside from one site, none of the sites recommended as not eligible contained evidence of intact features. The one exception to this, 11MO888, contained a single shallow pit feature. Extensive excavation of machine trenches at this site failed to yield additional intact deposits. Hence, it was concluded that few if any additional features were likely to be present at 11MO888. One additional caveat should be mentioned. Site 11MO880 was only partially located within the Valmeyer relocation parcel, and investigations were restricted to the southern site area. This portion of the site lacked intact deposits. The northern portion, though, had yielded prehistoric ceramics during the Phase I investigations in contrast to the southern portion of this site. It is recommended, therefore, that Phase II investigations be undertaken at the northern portion of this site if construction or other impacts are planned. Finally, while no intact features were found at 11MO885, an intact E horizon containing relatively large quantities of artifacts was identified. Given the presence of this intact soil horizon, it was thought likely that features are present at this site. Additional investigations are recommended at this site to determine whether intact features are present.

Finally, two sites were recommended as eligible for listing in the National Register of Historic Places: 11MO841 and 11MO891 (Figure 5-7). Three intact prehistoric pit features, dating to the Middle Archaic or Late Archaic period, were found at 11MO841. These features yielded substantial artifact assemblages and paleobotanical remains. Seven intact features, including houses, pits, and a probable burial, were identified at 11MO891. These features date to the Emergent Mississippian and Mississippian periods. These recommendations are summarized in Table 5-7.

Upon concurrence by the IHPA with these recommendations, FEMA and Woodward-Clyde Federal Services, Inc. requested that the Public Service Archaeology Program prepare a Phase III mitigation data recovery plan and implement that plan at sites 11MO841 and 11MO891. The results of those investigations are presented as Volumes 2 and 3 of this report, respectively. In consultation with the Village of Valmeyer, it was determined that 11MO885 was not scheduled to be impacted by relocation construction activities and, hence, site preservation instead of mitigation was deemed the most appropriate management strategy.

Table 6-2. Summary of NRHP Evaluations of Sites Located Within the Valmeyer Relocation Parcel.

Site	NRHP Status	Comments
11MO841	Eligible	Three Archaic period features located
11MO479	Not Eligible	Recommendation by Wells and Burns (1993)
11MO879	Not Eligible	Recommendation by Wells and Burns (1993)
11MO880-South	Not Eligible	No intact deposits present, plow zone to subsoil stratigraphy
11MO880-North	Potentially Eligible	Recommendation by Wells and Burns (1993)
11MO885	Potentially Eligible	Intact E horizon present, feature preservation likely
11MO886	Not Eligible	No intact deposits present, plow zone to subsoil stratigraphy
11MO887	Not Eligible	No intact deposits present, plow zone to subsoil stratigraphy
11MO888	Not Eligible	Only single feature located despite excavation of 1,919 m^2
11MO889	Not Eligible	No intact deposits present, plow zone to subsoil stratigraphy
11MO890	Not Eligible	No intact deposits present, plow zone to subsoil stratigraphy
11MO891	Eligible	Seven Emergent Mississippian to Mississippian features located
11MO892	Not Eligible	No intact deposits present, plow zone to subsoil stratigraphy
11MO893	Not Eligible	No intact deposits present, plow zone to subsoil stratigraphy
11MO894	Not Eligible	No intact deposits present, plow zone to subsoil stratigraphy
11MO895	Not Eligible	No intact deposits present, plow zone to subsoil stratigraphy
11MO896	Not Eligible	No intact deposits present, plow zone to subsoil stratigraphy

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APPENDIX A.

MATERIAL INVENTORIES FOR SITE COLLECTIONS

APPENDIX A

(11MO841)

	General Surface Collection Grid 16 Row 1 Unit 1		General Surface Collection Grid 16 Row 1 Unit 2		General Surface Collection Grid 16 Row 2 Unit 1		General Surface Collection Grid 16 Row 2 Unit 2		General Surface Collection Grid 16 Row 3 Unit 1		General Surface Collection Grid 16 Row 3 Unit 2		General Surface Collection Grid 16 Row 4 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface									1	117.0				
Thick biface									1	25.9				
Thin biface														
Projectile point/Knife														
End scraper														
Retouched flake														
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools									2	142.9				
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core													1	66.9
Bipolar core														
Tested core														
Unidirectional core														
Primary flake					1	9.0							1	6.0
Secondary flake	3	53.6	2	0.3	2	5.0			1	3.5			3	3.1
Tertiary flake	3	3.6			4	2.1	3	12.6	6	5.6	2	0.5	11	6.4
Bifacial thin. flake					1	1.0			1	0.3				
Broken flake	2	0.8	2	5.1			3	0.8	12	10.0	1	1.0	23	10.8
Bipolar flake														
Shatter	2	467.5	4	5.6	5	21.3	3	153.9	3	10.6	1	56.0	4	13.7
Blades														
Total Chert Debitage	10	525.5	8	11.0	13	38.4	9	167.3	23	30.0	4	57.5	43	106.9
NONCHERT ARTIFACTS														
Hammerstone														
Axe														
Pitted cobble														
Cobble														
Total Nonchert Artifacts														
MISC. MATERIAL														
Limestone	1	56.6	1	27.1	2	9.6							1	1.7
Fire-cracked rock														
Unmodified rock														
Slag														
Cinder														
Concrete														
Historic material														
Total Misc. Material	1	56.6	1	27.1	2	9.6							1	1.7
PAGE TOTAL	11	582.1	9	38.1	15	48.0	9	167.3	25	172.9	4	57.5	44	108.6
Utilized Flakes	2		1										2	

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	General Surface Collection Grid 16 Row 5 Unit 1		General Surface Collection Grid 16 Row 6 Unit 1		General Surface Collection Grid 16 Row 7 Unit 1		General Surface Collection Grid 16 Row 8 Unit 1		General Surface Collection Grid 16 Row 9 Unit 1		General Surface Collection Grid 16 Row 10 Unit 1		General Surface Collection Grid 16 Row 11 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Projectile point/Knife														
End scraper														
Retouched flake														
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools														
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core														
Bipolar core														
Tested core														
Unidirectional core														
Primary flake			1	4.2	1	10.3	1	2.3	1	5.7				
Secondary flake			2	14.1					1	14.2				
Tertiary flake														
Bifacial thin. flake														
Broken flake	3	1.6	1	1.7			1	3.2	2	1.0	2	2.6	1	0.2
Bipolar flake														
Shatter	10	156.3	5	242.8	1	1.0	3	5.9	1	14.5	3	4.9	5	40.5
Blades			1	7.3										
Total Chert Debitage	13	157.9	10	270.1	2	11.3	5	11.4	5	35.4	5	7.5	6	40.7
NONCHERT ARTIFACTS														
Hammerstone														
Axe														
Pitted cobble														
Cobble														
Total Nonchert Artifacts														
MISC. MATERIAL														
Limestone														
Fire-cracked rock							1	62.5			1	7.8		
Unmodified rock			1	431.7										
Slag														
Cinder														
Concrete														
Historic material														
Total Misc. Material			1	431.7			1	62.5			1	7.8		
PAGE TOTAL	13	157.9	11	701.8	2	11.3	6	73.9	5	35.4	6	15.3	6	40.7
Utilized Flakes	1						1		1					

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	General Surface Collection Grid 16 Row 12 Unit 1		General Surface Collection Grid 16 Row 13 Unit 1		General Surface Collection Grid 16 Row 14 Unit 1		General Surface Collection Grid 16 Row 15 Unit 1		General Surface Collection Grid 16 Row 16 Unit 1		General Surface Collection Grid 16 Row 17 Unit 1		General Surface Collection Grid 16 Row 18 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface									1	7.8				
Thin biface											1	1.7		
Projectile point/Knife											1	8.6		
End scraper														
Retouched flake									1	19.8				
Perforating tool							1	46.1						
Uniface fragment														
Wedge									1	114.3				
Total Chert Tools							1	46.1	3	141.9	2	10.3		
CHERT DEBITAGE														
Plano-convex core							1	29.0						
Multidirectional core					2	130.3	2	114.6					2	341.8
Bipolar core													1	91.9
Tested core					1	254.7								
Unidirectional core														
Primary flake					1	17.6	4	125.9	2	3.7				
Secondary flake			1	7.6			2	33.8	3	100.6	3	24.2	4	22.7
Tertiary flake			3	6.5	3	1.1			7	28.7	4	44.0	3	1.8
Bifacial thin. flake														
Broken flake	2	0.4			3	6.9	4	3.2	13	17.9	5	6.1	5	4.9
Bipolar flake					1	17.6								
Shatter	7	109.5	3	67.9	17	101.0	20	145.7	29	281.5	14	111.5	3	20.9
Blades									2	3.4				
Total Chert Debitage	9	109.9	7	82.0	28	529.2	33	452.2	56	435.8	26	185.8	18	484.0
NONCHERT ARTIFACTS														
Hammerstone											1	198.9		
Axe														
Pitted cobble														
Cobble														
Total Nonchert Artifacts											1	198.9		
MISC. MATERIAL														
Limestone					2	4.3	1	2.5						
Fire-cracked rock														
Unmodified rock			1	16.0	1	55.3					2	1.3		
Slag														
Cinder														
Concrete														
Historic material														
Total Misc. Material			1	16.0	3	59.6	1	2.5			2	1.3		
PAGE TOTAL	9	109.9	8	98.0	31	588.8	35	500.8	59	577.7	31	396.3	18	484.0
Utilized Flakes			3		1		1							

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	General Surface Collection Grid 16 Row 18 Unit 2		General Surface Collection Grid 16 Row 19 Unit 1		General Surface Collection Grid 16 Row 19 Unit 2		General Surface Collection Grid 16 Row 20 Unit 1		General Surface Collection Grid 16 Row 20 Unit 2		General Surface Collection Grid 16 Row 21 Unit 1		General Surface Collection Grid 16 Row 21 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface			1	3.2	1	3.2	1	2.9						
Projectile point/Knife														
End scraper														
Retouched flake														
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools			1	3.2	1	3.2	1	2.9						
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core	1	23.6	1	250.0										
Bipolar core			1	155.1										
Tested core														
Unidirectional core														
Primary flake	1	9.7	2	5.4	1	1.7	5	4.5	2	6.3				
Secondary flake	3	27.4	5	41.6	1	5.5	3	8.3	2	5.2				
Tertiary flake	3	8.1	17	13.1	2	7.7	8	9.0	1	0.6				
Bifacial thin. flake			1	0.5			1	0.3						
Broken flake	1	1.5	9	3.6	1	0.5	9	2.4			4	12.6	2	1.9
Bipolar flake														
Shatter	5	14.0	31	128.0	7	133.8	28	101.6	7	211.6	5	32.9	2	2.3
Blades														
Total Chert Debitage	14	84.3	67	597.3	12	149.2	54	126.1	12	223.7	9	45.5	4	4.2
NONCHERT ARTIFACTS														
Hammerstone														
Axe														
Pitted cobble														
Cobble														
Total Nonchert Artifacts														
MISC. MATERIAL														
Limestone	1	0.8	1	8.2			1	3.0						
Fire-cracked rock					1	11.8								
Unmodified rock														
Slag													1	2.3
Cinder														
Concrete													1	169.2
Historic material														
Total Misc. Material	1	0.8	1	8.2	1	11.8	1	3.0					2	171.5
PAGE TOTAL	15	85.1	69	608.7	14	164.2	56	132.0	12	223.7	9	45.5	6	175.7
Utilized Flakes														

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	General Surface Collection Grid 16 Row 22 Unit 1		General Surface Collection Grid 16 Row 22 Unit 2		General Surface Collection Grid 16 Row 23 Unit 1		General Surface Collection Grid 16 Row 23 Unit 2		General Surface Collection Grid 16 Row 24 Unit 1		General Surface Collection Grid 16 Row 24 Unit 2		General Surface Collection Grid 16 Row 25 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Projectile point/Knife														
End scraper														
Retouched flake														
Perforating tool														
Uniface fragment	1	6.9												
Wedge														
Total Chert Tools	1	6.9												
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core														
Bipolar core														
Tested core														
Unidirectional core														
Primary flake					1	5.7								
Secondary flake	1	10.5					2	1.8					1	17.8
Tertiary flake	1	1.7			1	1.0	1	0.2					1	1.1
Bifacial thin. flake			1	0.3										
Broken flake	4	3.3												
Bipolar flake														
Shatter	9	70.3	4	14.6	7	67.8	6	86.2	5	25.2	3	28.1	1	22.2
Blades					1	2.3								
Total Chert Debitage	15	85.8	5	14.9	10	76.8	9	88.2	5	25.2	3	28.1	3	41.1
NONCHERT ARTIFACTS														
Hammerstone														
Axe														
Pitted cobble														
Cobble														
Total Nonchert Artifacts														
MISC. MATERIAL														
Limestone	2	23.7	1	9.0			1	5.1						
Fire-cracked rock														
Unmodified rock					1	137.6								
Slag														
Cinder														
Concrete														
Historic material														
Total Misc. Material	2	23.7	1	9.0	1	137.6	1	5.1						
PAGE TOTAL	18	116.4	6	23.9	11	214.4	10	93.3	5	25.2	3	28.1	3	41.1
Utilized Flakes														

APPENDIX A

(11MO841)

	General Surface Collection Grid 16 Row 25 Unit 2		General Surface Collection Grid 17 Row 1 Unit 1		General Surface Collection Grid 17 Row 2 Unit 1		General Surface Collection Grid 17 Row 3 Unit 1		General Surface Collection Grid 17 Row 4 Unit 1		General Surface Collection Grid 17 Row 5 Unit 1		General Surface Collection Grid 17 Row 6 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface	1	1.8												
Projectile point/Knife														
End scraper														
Retouched flake														
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools	1	1.8												
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core														
Bipolar core														
Tested core														
Unidirectional core														
Primary flake														
Secondary flake			1	0.2					1	7.8	1	12.2		
Tertiary flake			3	1.8			2	3.6	5	4.3	1	0.2	2	4.8
Bifacial thin. flake									1	0.7	1	2.8		
Broken flake			3	0.3	1	2.5	5	6.5	8	5.0	4	2.1	3	2.2
Bipolar flake														
Shatter	7	13.1					2	8.3	2	36.0			2	0.3
Blades														
Total Chert Debitage	7	13.1	7	2.3	1	2.5	9	18.4	17	53.8	7	17.3	7	7.3
NONCHERT ARTIFACTS														
Hammerstone														
Axe														
Pitted cobble														
Cobble														
Total Nonchert Artifacts														
MISC. MATERIAL														
Limestone														
Fire-cracked rock														
Unmodified rock			1	447.7							1	426.6		
Slag														
Cinder														
Concrete														
Historic material														
Total Misc. Material			1	447.7							1	426.6		
PAGE TOTAL	8	14.9	8	450.0	1	2.5	9	18.4	17	53.8	8	443.9	7	7.3
Utilized Flakes							1		2				1	

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(11MO841)

	General Surface Collection Grid 17 Row 7 Unit 1		General Surface Collection Grid 17 Row 8 Unit 1		General Surface Collection Grid 17 Row 9 Unit 1		General Surface Collection Grid 17 Row 10 Unit 1		General Surface Collection Grid 18 Row 1 Unit 1		General Surface Collection Grid 18 Row 2 Unit 1		General Surface Collection Grid 18 Row 3 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Projectile point/Knife														
End scraper														
Retouched flake														
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools														
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core														
Bipolar core														
Tested core														
Unidirectional core														
Primary flake														
Secondary flake			1	29.0	1	21.5					1	7.1		
Tertiary flake	1	0.3	1	3.0										
Bifacial thin. flake														
Broken flake	1	0.2	1	0.2	1	1.4			1	0.2	1	1.7	1	13.7
Bipolar flake														
Shatter			1	53.0	1	14.3	3	43.6	3	462.7	3	73.1	4	34.2
Blades														
Total Chert Debitage	2	0.5	4	85.2	3	37.2	3	43.6	4	462.9	5	81.9	5	47.9
NONCHERT ARTIFACTS														
Hammerstone														
Axe														
Pitted cobble														
Cobble														
Total Nonchert Artifacts														
MISC. MATERIAL														
Limestone	2	27.9												
Fire-cracked rock														
Unmodified rock	1	0.4												
Slag														
Cinder														
Concrete														
Historic material														
Total Misc. Material	3	28.3												
PAGE TOTAL	5	28.8	4	85.2	3	37.2	3	43.6	4	462.9	5	81.9	5	47.9
Utilized Flakes			1											

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(11MO841)

	General Surface Collection Grid 18 Row 4 Unit 1		General Surface Collection Grid 18 Row 4 Unit 2		General Surface Collection Grid 18 Row 5 Unit 2		General Surface Collection Grid 18 Row 6 Unit 2		General Surface Collection Grid 18 Row 7 Unit 1		General Surface Collection Grid 18 Row 7 Unit 2		General Surface Collection Grid 18 Row 8 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Projectile point/Knife														
End scraper														
Retouched flake														
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools														
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core									1	25.9				
Bipolar core														
Tested core														
Unidirectional core														
Primary flake														
Secondary flake														
Tertiary flake													1	25.7
Bifacial thin. flake														
Broken flake			1	4.6										
Bipolar flake														
Shatter	2	175.8	2	8.9	1	5.4			1	131.3	1	167.8	3	270.1
Blades														
Total Chert Debitage	2	175.8	3	13.5	1	5.4			2	157.2	1	167.8	4	295.8
NONCHERT ARTIFACTS														
Hammerstone														
Axe														
Pitted cobble														
Cobble														
Total Nonchert Artifacts														
MISC. MATERIAL														
Limestone							1	34.5			2	292.3		
Fire-cracked rock														
Unmodified rock														
Slag														
Cinder														
Concrete														
Historic material														
Total Misc. Material							1	34.5			2	292.3		
PAGE TOTAL	2	175.8	3	13.5	1	5.4	1	34.5	2	157.2	3	460.1	4	295.8
Utilized Flakes														

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	General Surface Collection Grid 18 Row 9 Unit 1		General Surface Collection Grid 18 Row 10 Unit 1		General Surface Collection Grid 18 Row 10 Unit 2		General Surface Collection Grid 18 Row 11 Unit 1		General Surface Collection Grid 18 Row 12 Unit 1		General Surface Collection Grid 18 Row 13 Unit 1		General Surface Collection Grid 18 Row 14 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Projectile point/Knife	1	8.0												
End scraper														
Retouched flake														
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools	1	8.0												
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core														
Bipolar core														
Tested core														
Unidirectional core														
Primary flake														
Secondary flake														
Tertiary flake														
Bifacial thin. flake														
Broken flake									1	0.7				
Bipolar flake														
Shatter			5	36.4			3	5.7	1	0.2	1	0.9	1	10.0
Blades														
Total Chert Debitage			5	36.4			3	5.7	2	0.9	1	0.9	1	10.0
NONCHERT ARTIFACTS														
Hammerstone														
Axe														
Pitted cobble														
Cobble														
Total Nonchert Artifacts														
MISC. MATERIAL														
Limestone														
Fire-cracked rock														
Unmodified rock					1	376.3								
Slag														
Cinder														
Concrete														
Historic material														
Total Misc. Material					1	376.3								
PAGE TOTAL	1	8.0	5	36.4	1	376.3	3	5.7	2	0.9	1	0.9	1	10.0
Utilized Flakes														

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	General Surface Collection Grid 18 Row 15 Unit 1 N	W(g)	General Surface Collection Grid 18 Row 15 Unit 2 N	W(g)	General Surface Collection Grid 18 Row 16 Unit 1 N	W(g)	General Surface Collection Grid 18 Row 16 Unit 2 N	W(g)	General Surface Collection Grid 18 Row 17 Unit 1 N	W(g)	General Surface Collection Grid 18 Row 17 Unit 2 N	W(g)	General Surface Collection Grid 18 Row 18 Unit 1 N	W(g)
CHERT TOOLS														
Rough biface													1	12.9
Thick biface														
Thin biface														
Projectile point/Knife														
End scraper														
Retouched flake														
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools													1	12.9
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core														
Bipolar core														
Tested core														
Unidirectional core														
Primary flake														
Secondary flake					1	29.2								
Tertiary flake														
Bifacial thin. flake														
Broken flake	2	0.4									1	1.0		
Bipolar flake														
Shatter	1	85.7	1	2.9			1	98.3	1	6.8	1	323.7		
Blades														
Total Chert Debitage	3	86.1	1	2.9	1	29.2	1	98.3	1	6.8	2	324.7		
NONCHERT ARTIFACTS														
Hammerstone														
Axe														
Pitted cobble														
Cobble														
Total Nonchert Artifacts														
MISC. MATERIAL														
Limestone														
Fire-cracked rock														
Unmodified rock														
Slag														
Cinder														
Concrete														
Historic material														
Total Misc. Material														
PAGE TOTAL	3	86.1	1	2.9	1	29.2	1	98.3	1	6.8	2	324.7	1	12.9
Utilized Flakes														

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	General Surface Collection Grid 18 Row 19 Unit 1 N	W(g)	General Surface Collection Grid 18 Row 19 Unit 2 N	W(g)	General Surface Collection Grid 18 Row 20 Unit 1 N	W(g)	General Surface Collection Grid 18 Row 20 Unit 2 N	W(g)	General Surface Collection Grid 18 Row 21 Unit 1 N	W(g)	General Surface Collection Grid 18 Row 21 Unit 2 N	W(g)	General Surface Collection Grid 18 Row 22 Unit 1 N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Projectile point/Knife														
End scraper														
Retouched flake														
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools														
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core														
Bipolar core														
Tested core														
Unidirectional core														
Primary flake														
Secondary flake														
Tertiary flake														
Bifacial thin. flake														
Broken flake	3	0.8	1	0.6	1	0.4			1	0.9	1	0.1		
Bipolar flake														
Shatter			1	0.1	1	8.5	1	3.4	2	207.0	1	0.3	1	60.3
Blades														
Total Chert Debitage	3	0.8	2	0.7	2	8.9	1	3.4	3	207.9	2	0.4	1	60.3
NONCHERT ARTIFACTS														
Hammerstone														
Axe														
Pitted cobble														
Cobble														
Total Nonchert Artifacts														
MISC. MATERIAL														
Limestone														
Fire-cracked rock														
Unmodified rock	1	44.4												
Slag														
Cinder														
Concrete														
Historic material														
Total Misc. Material	1	44.4												
PAGE TOTAL	4	45.2	2	0.7	2	8.9	1	3.4	3	207.9	2	0.4	1	60.3
Utilized Flakes														

APPENDIX A

(11MO841)

	General Surface Collection Grid 18 Row 23 Unit 1		General Surface Collection Grid 18 Row 23 Unit 2		General Surface Collection Grid 18 Row 24 Unit 1		General Surface Collection Grid 18 Row 24 Unit 2		General Surface Collection Grid 18 Row 25 Unit 1		General Surface Collection Grid 18 Row 25 Unit 2		General Surface Collection Grid 18 Row 26 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Projectile point/Knife														
End scraper														
Retouched flake														
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools														
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core														
Bipolar core														
Tested core														
Unidirectional core														
Primary flake														
Secondary flake														
Tertiary flake					1	0.7								
Bifacial thin. flake														
Broken flake							1	1.5						
Bipolar flake														
Shatter	1	1.7	1	9.6			2	54.3	1	1368.7			1	4.2
Blades														
Total Chert Debitage	1	1.7	1	9.6	1	0.7	3	55.8	1	1368.7			1	4.2
NONCHERT ARTIFACTS														
Hammerstone											1	354.6		
Axe														
Pitted cobble														
Cobble														
Total Nonchert Artifacts											1	354.6		
MISC. MATERIAL														
Limestone													1	5.6
Fire-cracked rock														
Unmodified rock														
Slag														
Cinder														
Concrete														
Historic material														
Total Misc. Material													1	5.6
PAGE TOTAL	1	1.7	1	9.6	1	0.7	3	55.8	1	1368.7	1	354.6	2	9.8
Utilized Flakes														

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	General Surface Collection Grid 18 Row 26 Unit 2		General Surface Collection Grid 18 Row 30 Unit 1		General Surface Collection Grid 18 Row 30 Unit 2		General Surface Collection Grid 19 Row 1 Unit 1		General Surface Collection Grid 19 Row 2 Unit 1		General Surface Collection Grid 19 Row 2 Unit 2		General Surface Collection Grid 19 Row 3 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Projectile point/Knife														
End scraper														
Retouched flake														
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools														
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core														
Bipolar core									1	127.5	1	597.5		
Tested core														
Unidirectional core														
Primary flake							1	6.7	3	1.1	1	39.1		
Secondary flake					2	4.0	1	10.0	2	3.6	2	8.2		
Tertiary flake					1	2.1			10	3.1	3	4.2	1	0.9
Bifacial thin. flake											1	11.1		
Broken flake			1	1.0	3	3.1	4	3.8	12	2.8	4	2.6		
Bipolar flake														
Shatter			2	9.0	1	0.9	10	62.8	29	653.6	31	356.0	2	41.8
Blades														
Total Chert Debitage			3	10.0	7	10.1	16	83.3	57	791.7	43	1018.7	3	42.7
NONCHERT ARTIFACTS														
Hammerstone														
Axe														
Pitted cobble														
Cobble														
Total Nonchert Artifacts														
MISC. MATERIAL														
Limestone	2	0.5							18	23.1	8	84.4		
Fire-cracked rock														
Unmodified rock									7	13.4	1	0.1	1	568.9
Slag														
Cinder									3	17.0				
Concrete													1	190.2
Historic material									21	40.1	8	84.4	1	190.2
Total Misc. Material	2	0.5							49	93.6	17	168.9	3	949.3
PAGE TOTAL	2	0.5	3	10.0	7	10.1	16	83.3	106	885.3	60	1187.6	6	992.0
Utilized Flakes							2							

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	General Surface Collection Grid 19 Row 3 Unit 2		General Surface Collection Grid 19 Row 4 Unit 1		General Surface Collection Grid 19 Row 4 Unit 2		General Surface Collection Grid 19 Row 5 Unit 1		General Surface Collection Grid 19 Row 5 Unit 2		General Surface Collection Grid 19 Row 6 Unit 1		General Surface Collection Grid 19 Row 6 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Projectile point/Knife														
End scraper														
Retouched flake														
Perforating tool	1	16.9												
Uniface fragment														
Wedge														
Total Chert Tools	1	16.9												
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core														
Bipolar core					1	30.0	1	46.8			2	266.3	1	101.7
Tested core														
Unidirectional core														
Primary flake									1	14.9				
Secondary flake									1	119.9	2	52.3	1	14.1
Tertiary flake	2	8.2							1	0.5	2	0.3		
Bifacial thin. flake														
Broken flake											3	1.1	3	1.0
Bipolar flake					1	52.2								
Shatter	4	111.0	10	136.2	5	158.5	18	341.9	4	32.8	29	364.5	7	83.9
Blades														
Total Chert Debitage	6	119.2	10	136.2	7	240.7	19	388.7	7	168.1	38	684.5	12	200.7
NONCHERT ARTIFACTS														
Hammerstone			1	345.9										
Axe														
Pitted cobble														
Cobble														
Total Nonchert Artifacts			1	345.9										
MISC. MATERIAL														
Limestone					1	50.6					4	43.6		
Fire-cracked rock														
Unmodified rock			1	0.5			1	307.8			1	1.9		
Slag														
Cinder														
Concrete														
Historic material														
Total Misc. Material			1	0.5	1	50.6	1	307.8			5	45.5		
PAGE TOTAL	7	136.1	12	482.6	8	291.3	20	696.5	7	168.1	43	730.0	12	200.7
Utilized Flakes														

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	General Surface Collection Grid 19 Row 7 Unit 1		General Surface Collection Grid 19 Row 7 Unit 2		General Surface Collection Grid 19 Row 8 Unit 1		General Surface Collection Grid 19 Row 8 Unit 2		General Surface Collection Grid 19 Row 9 Unit 1		General Surface Collection Grid 19 Row 9 Unit 2		General Surface Collection Grid 19 Row 10 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface					1	37.6								
Thick biface														
Thin biface			1	5.9							1	0.6	1	2.4
Projectile point/Knife									1	0.5			1	5.4
End scraper														
Retouched flake														
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools			1	5.9	1	37.6			1	0.5	1	0.6	2	7.8
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core									2	310.7				
Bipolar core														
Tested core														
Unidirectional core														
Primary flake			1	26.9	2	14.4							2	14.0
Secondary flake			1	1.1	2	22.1	1	4.4	2	55.2	1	1.6	6	75.0
Tertiary flake			1	0.6	3	3.8	2	0.6	6	7.3	2	9.1	10	48.6
Bifacial thin. flake									2	1.9	1	0.8		
Broken flake	4	1.0	2	1.0	14	8.5	5	0.6	6	3.8	1	0.8	6	7.1
Bipolar flake														
Shatter	15	423.8	17	357.0	30	410.1	12	350.0	46	337.7	7	82.1	30	278.8
Blades														
Total Chert Debitage	19	424.8	22	386.6	51	458.9	20	355.6	64	716.6	12	94.4	54	423.5
NONCHERT ARTIFACTS														
Hammerstone					1	64.7	1	839.0			1	528.3		
Axe														
Pitted cobble									1	724.1				
Cobble														
Total Nonchert Artifacts					1	64.7	1	839.0	1	724.1	1	528.3		
MISC. MATERIAL														
Limestone	3	76.2	2	6.3	1	0.4			2	26.3			1	19.3
Fire-cracked rock											1	75.8		
Unmodified rock	3	703.2	3	2.4	3	357.8			2	2.2			2	234.5
Slag														
Cinder														
Concrete														
Historic material			2	2.2										
Total Misc. Material	6	779.4	7	10.9	4	358.2			4	28.5	1	75.8	3	253.8
PAGE TOTAL	25	1204.2	30	403.4	57	919.4	21	1194.6	70	1469.7	15	699.1	59	685.1
Utilized Flakes			1											

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	General Surface Collection Grid 19 Row 10 Unit 2		General Surface Collection Grid 19 Row 11 Unit 1		General Surface Collection Grid 19 Row 11 Unit 2		General Surface Collection Grid 19 Row 12 Unit 1		General Surface Collection Grid 19 Row 12 Unit 2		General Surface Collection Grid 19 Row 13 Unit 1		General Surface Collection Grid 19 Row 13 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface	1	11.7									1	6.7		
Thin biface														
Projectile point/Knife									1	1.9	1	6.3		
End scraper														
Retouched flake														
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools	1	11.7							1	1.9	2	13.0		
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core	2	243.5					2	62.5			1	82.9	2	276.2
Bipolar core														
Tested core														
Unidirectional core														
Primary flake	1	0.9	4	100.2			1	18.4			1	16.1	1	18.5
Secondary flake	2	13.2	5	54.4	4	20.1	3	53.8	2	1.8	1	3.0		
Tertiary flake	1	0.2	7	6.5	1	0.5	5	6.1			2	2.3	3	5.7
Bifacial thin. flake														
Broken flake	4	8.1	8	11.0	6	2.1	3	1.1	2	24.2	3	5.7	3	4.9
Bipolar flake														
Shatter	11	123.6	34	899.4	14	625.1	22	652.9	18	290.6	26	541.5	19	418.4
Blades														
Total Chert Debitage	21	389.5	58	1071.5	25	647.8	36	794.8	22	316.6	34	651.5	28	723.7
NONCHERT ARTIFACTS														
Hammerstone														
Axe														
Pitted cobble														
Cobble							1	549.2					1	179.4
Total Nonchert Artifacts							1	549.2					1	179.4
MISC. MATERIAL														
Limestone													2	42.9
Fire-cracked rock			4	1399.3					1	33.5				
Unmodified rock			2	567.9	1	261.8					2	441.8	1	212.9
Slag														
Cinder														
Concrete														
Historic material														
Total Misc. Material			6	1967.2	1	261.8			1	33.5	2	441.8	3	255.8
PAGE TOTAL	22	401.2	64	3038.7	26	909.6	37	1344.0	24	352.0	38	1106.3	32	1158.9
Utilized Flakes	1		1											

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(11MO841)

	General Surface Collection Grid 19 Row 14 Unit 1		General Surface Collection Grid 19 Row 14 Unit 2		General Surface Collection Grid 19 Row 15 Unit 1		General Surface Collection Grid 19 Row 15 Unit 2		General Surface Collection Grid 19 Row 16 Unit 1		General Surface Collection Grid 19 Row 16 Unit 2		General Surface Collection Grid 19 Row 17 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface					1	71.1								
Thick biface														
Thin biface														
Projectile point/Knife														
End scraper	1	43.4												
Retouched flake														
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools	1	43.4			1	71.1								
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core	1	119.9	1	119.9										
Bipolar core														
Tested core														
Unidirectional core														
Primary flake			3	113.0	2	7.4					1	0.9		
Secondary flake	3	89.9	3	14.0	1	30.4	1	21.2	3	88.7	1	11.8	1	12.3
Tertiary flake	4	21.1	4	2.8	2	5.2			5	2.4	2	7.6	2	7.1
Bifacial thin. flake														
Broken flake	2	7.6	5	3.0	6		1	0.2	2	2.4				
Bipolar flake														
Shatter	22	394.3	15	106.2	8	162.2	7	112.3	6	192.0	2	2.4	8	74.8
Blades														
Total Chert Debitage	32	632.8	31	358.9	19	205.2	9	133.7	16	285.5	6	127.9	11	94.2
NONCHERT ARTIFACTS														
Hammerstone	1	705.5							1	652.6				
Axe														
Pitted cobble														
Cobble														
Total Nonchert Artifacts	1	705.5							1	652.6				
MISC. MATERIAL														
Limestone														
Fire-cracked rock	2	17.5												
Unmodified rock	1	190.6												
Slag														
Cinder														
Concrete														
Historic material														
Total Misc. Material	3	208.1												
PAGE TOTAL	37	1589.8	31	358.9	20	276.3	9	133.7	17	938.1	6	127.9	11	94.2
Utilized Flakes	2				1		1		1		1		2	

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	General Surface Collection Grid 19 Row 17 Unit 2 N	W(g)	General Surface Collection Grid 19 Row 18 Unit 1 N	W(g)	General Surface Collection Grid 19 Row 19 Unit 1 N	W(g)	General Surface Collection Grid 19 Row 19 Unit 2 N	W(g)	General Surface Collection Grid 19 Row 20 Unit 1 N	W(g)	General Surface Collection Grid 19 Row 20 Unit 2 N	W(g)	General Surface Collection Grid 19 Row 21 Unit 1 N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Projectile point/Knife														
End scraper														
Retouched flake														
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools														
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core														
Bipolar core														
Tested core														
Unidirectional														
Primary flake														
Secondary flake													3	18.4
Tertiary flake			2	1.3	1	1.4							2	9.5
Bifacial thin. flake														
Broken flake			2	4.8					1	0.1			3	1.9
Bipolar flake														
Shatter	2	36.4	5	31.9			1	5.0	8	175.2	4	8.9	4	5.1
Blades														
Total Chert Debitage	2	36.4	9	38.0	1	1.4	1	5.0	9	175.3	4	8.9	12	34.9
NONCHERT ARTIFACTS														
Hammerstone														
Axe														
Pitted cobble														
Cobble														
Total Nonchert Artifacts														
MISC. MATERIAL														
Limestone														
Fire-cracked rock														
Unmodified rock					2	1.8							1	0.5
Slag														
Cinder														
Concrete														
Historic material														
Total Misc. Material					2	1.8							1	0.5
PAGE TOTAL	2	36.4	9	38.0	3	3.2	1	5.0	9	175.3	4	8.9	13	35.4
Utilized Flakes														

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	General Surface Collection Grid 19 Row 21 Unit 2		General Surface Collection Grid 19 Row 22 Unit 1		General Surface Collection Grid 19 Row 22 Unit 2		General Surface Collection Grid 19 Row 23 Unit 1		Machine Trench 51		Machine Trench 52		Machine Trench 52 rock concentration	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface									1	184.6				
Thick biface											1	50.4		
Thin biface														
Projectile point/Knife														
End scraper														
Retouched flake											2	56.0		
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools									1	184.6	3	106.4		
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core							1	98.8			3	282.9	1	95.4
Bipolar core														
Tested core														
Unidirectional														
Primary flake											2	14.5		
Secondary flake					2	19.1			1	1.1	7	78.9	1	19.3
Tertiary flake									1	2.6	18	153.2	2	16.1
Bifacial thin. flake														
Broken flake							1	0.5			7	6.2		
Bipolar flake														
Shatter	2	30.6	3	145.4			3	24.7	4	115.2	52	1419.2	10	94.6
Blades														
Total Chert Debitage	2	30.6	3	145.4	2	19.1	5	124.0	6	118.9	89	1954.9	14	225.4
NONCHERT ARTIFACTS														
Hammerstone											1	392.1		
Axe														
Pitted cobble														
Cobble													1	505.7
Total Nonchert Artifacts											1	392.1	1	505.7
MISC. MATERIAL														
Limestone														
Fire-cracked rock											1	84.7		
Unmodified rock			2	1281.5					4	307.9	12	736.2	20	474.1
Slag														
Cinder														
Concrete														
Historic material														
Total Misc. Material			2	1281.5					4	307.9	13	820.9	20	474.1
PAGE TOTAL	2	30.6	5	1426.9	2	19.1	5	124.0	11	611.4	106	3274.3	35	1205.2
Utilized Flakes											5			

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	Machine Trench 52 Feature 16 East 1/2		Machine Trench 52 Feature 16 West 1/2		Machine Trench 56		Machine Trench 57		Machine Trench 57B Bag 1 of 3		Machine Trench 57B Bag 2 of 3		Machine Trench 57B Bag 3 of 3	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface							1	43.4					1	11.4
Thin biface													1	5.8
Projectile point/Knife									1	57.7				
End scraper														
Retouched flake														
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools							1	43.4	1	57.7			2	17.2
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core							2	143.7	2	241.8	1	157.7		
Bipolar core							1	192.0	1	121.0	1	72.6		
Tested core														
Unidirectional													1	35.5
Primary flake					1	18.0	2	36.2	7	30.0	4	95.8	1	43.1
Secondary flake			1	6.0			11	204.6	5	40.0	3	70.0	4	114.6
Tertiary flake	2	16.6	12	17.1			17	162.1	10	13.3	3	56.8		
Bifacial thin. flake							2	0.2						
Broken flake	2	2.7	12	15.0			7	6.5	7	24.9			2	4.9
Bipolar flake														
Shatter	4	126.8	29	234.8	1	6.5	51	1158.1	46	298.0	27	1523.3	27	1077.6
Blades														
Total Chert Debitage	8	146.1	54	272.9	2	24.5	93	1903.4	78	769.0	39	1976.2	35	1275.7
NONCHERT ARTIFACTS														
Hammerstone							1	242.8	3	588.7				
Axe														
Pitted cobble														
Cobble									4	2736.3	3	1428.7		
Total Nonchert Artifacts							1	242.8	7	3325.0	3	1428.7		
MISC. MATERIAL														
Limestone			2	0.9										
Fire-cracked rock	2	56.5					2	81.7						
Unmodified rock					2	211.0	14	923.3	1	45.5	9	444.1	1	11.4
Slag									1	0.7				
Cinder														
Concrete													1	39.0
Historic material									11	1.8				
Total Misc. Material	2	56.5	2	0.9	2	211.0	16	1005.0	13	48.0	9	444.1	2	50.4
PAGE TOTAL					4	235.5	111	3194.6	99	4199.7	51	3849.0	39	1343.3
Utilized Flakes							4		1					

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	Machine Trench 58		Machine Trench 60		Machine Trench 61		Machine Trench 62		Machine Trench 64 Feature 17		Machine Trench 64 Feature 18 East 1/2		Machine Trench 64 Feature 18 West 1/2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Projectile point/Knife														
End scraper														
Retouched flake					1	8.2								
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools					1	8.2								
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core														
Bipolar core														
Tested core														
Unidirectional														
Primary flake														
Secondary flake			2	24.0									2	12.7
Tertiary flake			1	2.4			1	2.3	2	0.1			1	2.0
Bifacial thin. flake					1	1.6								
Broken flake	1	1.7	3	13.3					1	2.2				
Bipolar flake														
Shatter	3	158.0	9	323.3	9	77.2	3	874.5	8	5.4	9	28.0	4	8.0
Blades														
Total Chert Debitage	4	159.7	15	363.0	10	78.8	4	876.8	11	7.7	9	28.0	7	22.7
NONCHERT ARTIFACTS														
Hammerstone	1	212.2							1	213.5				
Axe														
Pitted cobble														
Cobble					1	25.2								
Total Nonchert Artifacts	1	212.2			1	25.2			1	213.5				
MISC. MATERIAL														
Limestone														
Fire-cracked rock														
Unmodified rock	1	76.2	3	73.8	1	5.5	3	218.0						
Slag														
Cinder														
Concrete														
Historic material														
Total Misc. Material	1	76.2	3	73.8	1	5.5	3	218.0						
PAGE TOTAL	6	448.1	18	436.8	13	117.7	7	1094.8						
Utilized Flakes			1											

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	Machine Trench 66		Piece Plot 25 Collection Grid 18 Row 5 Unit 1		Piece Plot 29 Machine Trench 52 Feature 16		Piece Plot 30 Machine Trench 62	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS								
Rough biface								
Thick biface							1	69.7
Thin biface								
Projectile point/Knife								
End scraper								
Retouched flake								
Perforating tool								
Uniface fragment								
Wedge								
Total Chert Tools							1	69.7
CHERT DEBITAGE								
Plano-convex core								
Multidirectional core								
Bipolar core								
Tested core								
Unidirectional								
Primary flake								
Secondary flake								
Tertiary flake								
Bifacial thin. flake								
Broken flake								
Bipolar flake								
Shatter	11	249.2						
Blades								
Total Chert Debitage	11	249.2						
NONCHERT ARTIFACTS								
Hammerstone								
Axe					1	469.5		
Pitted cobble								
Cobble								
Total Nonchert Artifacts					1	469.5		
MISC. MATERIAL								
Limestone								
Fire-cracked rock								
Unmodified rock	6	36.9	1	0.7				
Slag								
Cinder								
Concrete								
Historic material	2	4.7						
Total Misc. Material	8	41.6	1	0.7				
PAGE TOTAL	19	290.8	1	0.7	1	469.5	1	69.7
Utilized Flakes								

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	General Surface Collection Grid 20 Row 14 Unit 1		General Surface Collection Grid 20 Row 14 Unit 2		General Surface Collection Grid 20 Row 15 Unit 1		General Surface Collection Grid 20 Row 16 Unit 1		General Surface Collection Grid 20 Row 17 Unit 1		General Surface Collection Grid 20 Row 18 Unit 1		General Surface Collection Grid 20 Row 19 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Undetermined biface														
Retouched flake														
Undetermined uniface														
Total Chert Tools														
CHERT DEBITAGE														
Multidirectional core														
Bipolar core														
Undetermined core														
Primary flake														
Secondary flake									1	5.1				
Tertiary flake							1	10.0			1	0.4		
Bifacial thin. flake														
Broken flake	1	1.3	3	3.5	1	0.4							2	0.1
Shatter	3	102.2			1	0.3			1	179.9	1	0.7	6	272.7
Total Chert Debitage	4	103.5	3	3.5	2	0.7	1	10.0	2	185.0	2	1.1	8	272.8
NONCHERT ARTIFACTS														
Hammerstone														
Pitted cobble														
Total Nonchert Artifacts														
MISC. MATERIAL														
Limestone													6	0.7
Fire-cracked rock														
Unmodified rock														
Total Misc. Material													6	0.7
PAGE TOTAL	4	103.5	3	3.5	2	0.7	1	10.0	2	185.0	2	1.1	14	273.5
Utilized Flakes														

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	General Surface Collection Grid 20 Row 19 N	Unit 2 W(g)	General Surface Collection Grid 20 Row 20 N	Unit 1 W(g)	General Surface Collection Grid 20 Row 20 N	Unit 2 W(g)	General Surface Collection Grid 20 Row 21 N	Unit 1 W(g)	General Surface Collection Grid 20 Row 21 N	Unit 2 W(g)	General Surface Collection Grid 20 Row 22 N	Unit 1 W(g)	General Surface Collection Grid 20 Row 22 N	Unit 2 W(g)
CHERT TOOLS														
Rough biface													1	93.0
Thick biface														
Thin biface														
Undetermined biface														
Retouched flake														
Undetermined uniface														
Total Chert Tools													1	93.0
CHERT DEBITAGE														
Multidirectional core														
Bipolar core														
Undetermined core														
Primary flake														
Secondary flake					1	2.9					1	16.0		
Tertiary flake			1	0.6	1	0.4	1	0.8					1	1.8
Bifacial thin. flake														
Broken flake			1	0.9			3	3.5	1	2.1	1	0.4		
Shatter	2	7.7	3	4.2			2	1.0			6	32.9	2	118.2
Total Chert Debitage	2	7.7	5	5.7	2	3.3	6	5.3	1	2.1	8	49.3	3	120.0
NONCHERT ARTIFACTS														
Hammerstone														
Pitted cobble														
Total Nonchert Artifacts														
MISC. MATERIAL														
Limestone														
Fire-cracked rock														
Unmodified rock														
Total Misc. Material														
PAGE TOTAL	2	7.7	5	5.7	2	3.3	6	5.3	1	2.1	8	49.3	5	306.0
Utilized Flakes														

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	General Surface Collection Grid 20 Row 23 Unit 1 N	W(g)	General Surface Collection Grid 20 Row 23 Unit 2 N	W(g)	General Surface Collection Grid 20 Row 24 Unit 1 N	W(g)	General Surface Collection Grid 20 Row 24 Unit 2 N	W(g)	General Surface Collection Grid 20 Row 25 Unit 1 N	W(g)	General Surface Collection Grid 20 Row 25 Unit 2 N	W(g)	General Surface Collection Grid 20 Row 26 Unit 1 N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Undetermined biface														
Retouched flake														
Undetermined uniface														
Total Chert Tools														
CHERT DEBITAGE														
Multidirectional core														
Bipolar core														
Undetermined core														
Primary flake							1	7.3	1	1.2				
Secondary flake	1	9.3	3	20.7	1	0.2	1	5.1	3	81.8			1	0.6
Tertiary flake	1	5.9	1	1.3			1	6.7						
Bifacial thin. flake														
Broken flake	3	12.3	1	6.1	6	12.5			1	0.3			2	2.6
Shatter	2	44.0	3	36.8	5	77.5			2	6.5	1	21.2	5	182.7
Total Chert Debitage	7	71.5	8	64.9	12	90.2	3	19.1	7	89.8	1	21.2	8	185.9
NONCHERT ARTIFACTS														
Hammerstone														
Pitted cobble														
Total Nonchert Artifacts														
MISC. MATERIAL														
Limestone	1	1.0												
Fire-cracked rock									1	65.9				
Unmodified rock														
Total Misc. Material	1	1.0							1	65.9				
PAGE TOTAL	8	72.5	8	64.9	12	90.2	3	19.1	8	155.7	1	21.2	8	185.9
Utilized Flakes	1		1											

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	General Surface Collection Grid 20 Row 26 Unit 2 N	W(g)	General Surface Collection Grid 20 Row 27 Unit 1 N	W(g)	General Surface Collection Grid 20 Row 27 Unit 2 N	W(g)	General Surface Collection Grid 20 Row 28 Unit 1 N	W(g)	General Surface Collection Grid 20 Row 29 Unit 1 N	W(g)	General Surface Collection Grid 20 Row 29 Unit 2 N	W(g)	General Surface Collection Grid 20 Row 30 Unit 1 N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Undetermined biface														
Retouched flake														
Undetermined uniface														
Total Chert Tools														
CHERT DEBITAGE														
Multidirectional core														
Bipolar core														
Undetermined core														
Primary flake			4	102.4									1	78.9
Secondary flake			1	0.2					2	64.0			3	69.1
Tertiary flake	1	0.1					1	4.2	1	1.5	1	0.7		
Bifacial thin. flake														
Broken flake	1	0.2							1	2.7				
Shatter			2	49.5	3	49.5	3	14.9	1	11.7			2	3.5
Total Chert Debitage	2	0.3	7	152.1	3	49.5	4	19.1	5	79.9	1	0.7	6	151.5
NONCHERT ARTIFACTS														
Hammerstone														
Pitted cobble														
Total Nonchert Artifacts														
MISC. MATERIAL														
Limestone							1	0.5						
Fire-cracked rock														
Unmodified rock					1	489.8	1	176.6					2	591.7
Total Misc. Material					1	489.8	2	177.1					2	591.7
PAGE TOTAL	2	0.3	7	152.1	4	539.3	6	196.2	5	79.9	1	0.7	8	743.2
Utilized Flakes													2	

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	General Surface Collection Grid 20 Row 30 Unit 2		General Surface Collection Grid 20 Row 31 Unit 1		General Surface Collection Grid 20 Row 32 Unit 1		General Surface Collection Grid 20 Row 32 Unit 2		General Surface Collection Grid 20 Row 33 Unit 1		General Surface Collection Grid 20 Row 34 Unit 1		General Surface Collection Grid 20 Row 35 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Undetermined biface														
Retouched flake														
Undetermined uniface											1	48.0		
Total Chert Tools											1	48.0		
CHERT DEBITAGE														
Multidirectional core	1	303.4									1	231.1		
Bipolar core														
Undetermined core														
Primary flake														
Secondary flake	2	56.3			2	18.0			1	13.1	1	32.9	3	12.7
Tertiary flake							1	1.2	1	11.2	1	0.5		
Bifacial thin. flake	1	5.9												
Broken flake			1	1.1			3	7.1	1	2.8			1	1.7
Shatter	2	10.6	3	44.5			2	5.7	1	12.2	2	29.8		
Total Chert Debitage	6	376.2	4	45.6	2	18.0	6	14.0	4	39.3	5	294.3	4	14.4
NONCHERT ARTIFACTS														
Hammerstone														
Pitted cobble														
Total Nonchert Artifacts														
MISC. MATERIAL														
Limestone														
Fire-cracked rock					1	5.5			1	65.0	1	7.3		
Unmodified rock					1	775.5					1	76.8	1	424.7
Total Misc. Material					2	781.0			1	65.0	2	84.1	1	424.7
PAGE TOTAL	6	376.2	4	45.6	4	799.0	6	14.0	5	104.3	8	426.4	5	439.1
Utilized Flakes	1								1		1			

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	General Surface Collection Grid 20 Row 35 Unit 2 N	W(g)	General Surface Collection Grid 20 Row 36 Unit 1 N	W(g)	General Surface Collection Grid 20 Row 36 Unit 2 N	W(g)	General Surface Collection Grid 20 Row 37 Unit 1 N	W(g)	General Surface Collection Grid 20 Row 37 Unit 2 N	W(g)	General Surface Collection Grid 20 Row 38 Unit 1 N	W(g)	General Surface Collection Grid 20 Row 38 Unit 2 N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface											1	21.6		
Thin biface														
Undetermined biface														
Retouched flake														
Undetermined uniface														
Total Chert Tools											1	21.6		
CHERT DEBITAGE														
Multidirectional core														
Bipolar core											1	208.4		
Undetermined core											1	54.1		
Primary flake			1	1.0										
Secondary flake			2	2.8	1	4.2	2	2.0			1	37.5	2	1.1
Tertiary flake	1	0.3	3	2.8			1	0.2			2	1.7	1	0.2
Bifacial thin. flake														
Broken flake	1	0.5	2	2.0	2	1.5	5	5.5	1	1.9			3	9.8
Shatter	1	0.4	4	34.4	1	14.8	5	11.4					2	6.4
Total Chert Debitage	3	1.2	12	43.0	4	20.5	13	19.1	1	1.9	5	301.7	8	17.5
NONCHERT ARTIFACTS														
Hammerstone														
Pitted cobble														
Total Nonchert Artifacts														
MISC. MATERIAL														
Limestone														
Fire-cracked rock							1	95.9					1	8.3
Unmodified rock			3	205.2			1	128.0						
Total Misc. Material			3	205.2			2	223.9					1	8.3
PAGE TOTAL	3	1.2	15	248.2	4	20.5	15	243.0	1	1.9	6	323.3	9	25.8
Utilized Flakes														

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	General Surface Collection Grid 20 Row 39 Unit 1 N	W(g)	General Surface Collection Grid 20 Row 39 Unit 2 N	W(g)	General Surface Collection Grid 20 Row 40 Unit 1 N	W(g)	General Surface Collection Grid 20 Row 40 Unit 2 N	W(g)	General Surface Collection Grid 20 Row 41 Unit 1 N	W(g)	General Surface Collection Grid 20 Row 41 Unit 2 N	W(g)	General Surface Collection Grid 20 Row 42 Unit 1 N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Undetermined biface														
Retouched flake	1	38.5												
Undetermined uniface														
Total Chert Tools	1	38.5												
CHERT DEBITAGE														
Multidirectional core														
Bipolar core														
Undetermined core														
Primary flake			1	3.4					2	145.5				
Secondary flake	1	9.4	1	5.3	1	11.6	1	22.1	2	33.9	2	20.8	1	11.1
Tertiary flake	1	0.1	2	0.7			3	9.3	3	0.8	4	2.2	1	0.5
Bifacial thin. flake									1	0.6				
Broken flake	4	5.8	2	1.4	2	4.0	3	4.9	3	9.1	1	0.6	1	0.3
Shatter	2	2.9			3	166.8	5	5.8	1	7.0	2	8.7	3	145.5
Total Chert Debitage	8	18.2	6	10.8	6	182.4	12	42.1	12	196.9	9	32.3	6	157.4
NONCHERT ARTIFACTS														
Hammerstone														
Pitted cobble														
Total Nonchert Artifacts														
MISC. MATERIAL														
Limestone														
Fire-cracked rock	1	44.9	1	12.0										
Unmodified rock	3	289.0	1	218.3										
Total Misc. Material	4	333.9	2	230.3										
PAGE TOTAL	13	390.6	8	241.1	6	182.4	12	42.1	12	196.9	9	32.3	6	157.4
Utilized Flakes														

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	General Surface Collection Grid 20 Row 42 Unit 2		General Surface Collection Grid 20 Row 43 Unit 1		General Surface Collection Grid 20 Row 43 Unit 2		General Surface Collection Grid 20 Row 44 Unit 1		General Surface Collection Grid 20 Row 44 Unit 2		General Surface Collection Grid 21 Row 1 Unit 1		General Surface Collection Grid 21 Row 2 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface			1	1.9										
Undetermined biface			1	1.7										
Retouched flake														
Undetermined uniface														
Total Chert Tools			2	3.6										
CHERT DEBITAGE														
Multidirectional core														
Bipolar core			1	192.2			1	71.8						
Undetermined core														
Primary flake														
Secondary flake			3	52.4			1	20.6	2	14.8	1	26.6	1	10.0
Tertiary flake	2	0.5	1	3.4	1	12.5	2	4.7					1	0.2
Bifacial thin. flake														
Broken flake	1	6.3	1	0.5	3	3.4	1	33.0			1	4.5	1	0.1
Shatter	2	1.5	1	34.0					2	68.6	1	6.6		
Total Chert Debitage	5	8.3	7	282.5	4	15.9	5	130.1	4	83.4	3	37.7	3	10.3
NONCHERT ARTIFACTS														
Hammerstone														
Pitted cobble														
Total Nonchert Artifacts														
MISC. MATERIAL														
Limestone														
Fire-cracked rock														
Unmodified rock							1	13.0			2	233.4		
Total Misc. Material							1	13.0			2	233.4		
PAGE TOTAL	5	8.3	9	286.1	4	15.9	6	143.1	4	83.4	5	271.1	3	10.3
Utilized Flakes			1				1							

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	General Surface Collection Grid 21 Row 3 Unit 1		General Surface Collection Grid 21 Row 4 Unit 1		General Surface Collection Grid 21 Row 5 Unit 1		General Surface Collection Grid 21 Row 6 Unit 1		General Surface Collection Grid 21 Row 7 Unit 1		General Surface Collection Grid 21 Row 8 Unit 1		General Surface Collection Grid 22 Row 1 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Undetermined biface														
Retouched flake														
Undetermined uniface														
Total Chert Tools														
CHERT DEBITAGE														
Multidirectional core			1	132.0										
Bipolar core														
Undetermined core														
Primary flake	1	32.4			2	43.6								
Secondary flake	1	34.2			1	63.1	1	1.5						
Tertiary flake	1	0.4			4	4.3	2	1.8			3	9.3	1	9.0
Bifacial thin. flake														
Broken flake	2	5.8			4	5.1	4	22.6			1	0.8		
Shatter			5	114.5	2	277.8	4	4.7	1	53.2				
Total Chert Debitage	5	72.8	6	246.5	13	393.9	11	30.6	1	53.2	4	10.1	1	9.0
NONCHERT ARTIFACTS														
Hammerstone														
Pitted cobble														
Total Nonchert Artifacts														
MISC. MATERIAL														
Limestone														
Fire-cracked rock														
Unmodified rock													1	5.7
Total Misc. Material													1	5.7
PAGE TOTAL	5	72.8	6	246.5	13	393.9	11	30.6	1	53.2	4	10.1	2	14.7
Utilized Flakes	1						1							

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	General Surface Collection Grid 22 Row 2 Unit 1		General Surface Collection Grid 22 Row 3 Unit 1		General Surface Collection Grid 22 Row 4 Unit 1		General Surface Collection Grid 22 Row 5 Unit 1		General Surface Collection Grid 22 Row 6 Unit 1		General Surface Collection Grid 22 Row 7 Unit 1		General Surface Collection Grid 23 Row 1 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface									1	98.1				
Thin biface														
Undetermined biface														
Retouched flake														
Undetermined uniface														
Total Chert Tools									1	98.1				
CHERT DEBITAGE														
Multidirectional core														
Bipolar core														
Undetermined core														
Primary flake					1	24.2								
Secondary flake	1	7.2			2	13.6	2	1.8						
Tertiary flake					1	0.3	1	2.6			1	6.8	2	0.5
Bifacial thin. flake														
Broken flake	1	12.2	1	2.9	4	3.2	3	4.5			1	0.7	1	0.4
Shatter			1	3.0	4	10.1	1	0.6	1	4.9	1	1.7		
Total Chert Debitage	2	19.4	2	5.9	12	51.4	7	9.5	1	4.9	3	9.2	3	0.9
NONCHERT ARTIFACTS														
Hammerstone														
Pitted cobble														
Total Nonchert Artifacts														
MISC. MATERIAL														
Limestone														
Fire-cracked rock														
Unmodified rock	4	0.4	2	248.5	1	4.8								
Total Misc. Material	4	0.4	2	248.5	1	4.8								
PAGE TOTAL	6	19.8	4	254.4	13	56.2	7	9.5	2	103.0	3	9.2	3	0.9
Utilized Flakes														

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	General Surface Collection Grid 23 Row 2 Unit 1		General Surface Collection Grid 23 Row 3 Unit 1		General Surface Collection Grid 23 Row 4 Unit 1		General Surface Collection Grid 23 Row 5 Unit 1		Machine Trench 67		Machine Trench 68		Machine Trench 69	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Undetermined biface														
Retouched flake														
Undetermined uniface														
Total Chert Tools														
CHERT DEBITAGE														
Multidirectional core														
Bipolar core														
Undetermined core														
Primary flake														
Secondary flake					1	0.8			1	9.5	1	1.8		
Tertiary flake	2	0.6												
Bifacial thin. flake														
Broken flake	1	1.3			1	8.3	1	1.6			1	58.3		
Shatter	2	1.7	1	165.9	1	7.8			1	6.1	2	7.6		
Total Chert Debitage	5	3.6	1	165.9	3	16.9	1	1.6	2	15.6	4	67.7		
NONCHERT ARTIFACTS														
Hammerstone														
Pitted cobble														
Total Nonchert Artifacts														
MISC. MATERIAL														
Limestone														
Fire-cracked rock	1	10.0											1	48.6
Unmodified rock	2	74.6												
Total Misc. Material	3	84.6											1	48.6
PAGE TOTAL	8	88.2	1	165.9	3	16.9	1	1.6	2	15.6	4	67.7	1	48.6
Utilized Flakes														

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	Machine Trench 70		Machine Trench 71		Machine Trench 72		Machine Trench 73		Machine Trench 74		Machine Trench 76		Machine Trench 77	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface	1	91.0											1	100.7
Thick biface														
Thin biface														
Undetermined biface			1	2.1										
Retouched flake														
Undetermined uniface														
Total Chert Tools	1	91.0	1	2.1									1	100.7
CHERT DEBITAGE														
Multidirectional core	1	122.8	2	297.9	2	128.0								
Bipolar core														
Undetermined core														
Primary flake	3	34.6			1	6.5			1	21.9			2	2.7
Secondary flake	1	0.1	5	58.3	1	5.1	1	1.1			2	8.7	4	128.7
Tertiary flake	3	0.4	31	32.0	3	5.8	5	54.8			1	0.3	8	9.6
Bifacial thin. flake														
Broken flake	2	1.6	1	1.9	1	7.4			1	0.3	4	31.9	5	3.4
Shatter	5	199.1	14	43.4			2	17.4	2	64.5	3	85.7	9	86.5
Total Chert Debitage	15	358.6	53	433.5	8	152.8	8	73.3	4	86.7	10	126.6	28	230.9
NONCHERT ARTIFACTS														
Hammerstone													1	334.7
Pitted cobble													1	309.8
Total Nonchert Artifacts													2	644.5
MISC. MATERIAL														
Limestone														
Fire-cracked rock			13	135.8									2	58.9
Unmodified rock			1	1.5	2	1525.1	3	184.3			2	137.8	4	1895.5
Total Misc. Material			14	137.3	2	1525.1	3	184.3			2	137.8	6	1954.4
PAGE TOTAL	16	449.6	68	572.9	10	1677.9	11	257.6	4	86.7	12	264.4	37	2930.5
Utilized Flakes			2				2						1	

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Machine Trench 78

	N	W(g)
CHERT TOOLS		
Rough biface		
Thick biface		
Thin biface		
Undetermined biface		
Retouched flake		
Undetermined uniface		
Total Chert Tools		
CHERT DEBITAGE		
Multidirectional core		
Bipolar core	1	54.3
Undetermined core		
Primary flake		
Secondary flake	2	2.6
Tertiary flake	2	7.6
Bifacial thin. flake		
Broken flake	3	22.1
Shatter	3	43.6
Total Chert Debitage	11	130.2
NONCHERT ARTIFACTS		
Hammerstone		
Pitted cobble	1	721.8
Total Nonchert Artifacts	1	721.8
MISC. MATERIAL		
Limestone		
Fire-cracked rock		
Unmodified rock	3	695.3
Total Misc. Material	3	695.3
PAGE TOTAL	15	1547.3
Utilized Flakes		

APPENDIX A
(11MO885)

	Post Hole 1 0-10 cm bs		Machine Trench Unit 2 20-30 cm bs		Machine Trench Unit 3 10-20 cm bs		Machine Trench Unit 4 10-25 cm bs	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS								
Undetermined uniface					1	341.8		
CHERT DEBITAGE								
Bipolar core	1	672.6	1	66.8				
Secondary flake					2	3.2	1	382.3
Shatter					2	2.2		
Total Chert Debitage	1	672.6	1	66.8	4	5.4	1	382.3
MISC. MATERIAL								
Fire-cracked rock					7	331.3	5	65.8
PAGE TOTAL	1	672.6	1	66.8	12	678.5	6	448.1

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(11MO886)

	General Surface Collection Grid 1 Row 1 Unit 1 West 25%		General Surface Collection Grid 1 Row 1 Unit 2 West 25%		General Surface Collection Grid 1 Row 2		General Surface Collection Grid 1 Unit 1 Row 2		General Surface Collection Grid 1 Unit 2 Row 2		General Surface Collection Grid 1 Unit 4 Row 2		General Surface Collection Grid 1 Unit 5 Row 3	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Thick biface														
Thin biface														
Thin biface fragment					1	0.5								
Projectile point/Knife														
Undetermined biface														
Retouched flake														
Undetermined uniface														
Total Chert Tools					1	0.5								
CHERT DEBITAGE														
Multidirectional core														
Undetermined core														
Primary flake							2	16.8			2	76.1		
Secondary flake					2	9.2	1	8.1	3	18.5				
Tertiary flake					2	19.8	1	4.6	1	0.2	2	15.7	4	14.1
Bipolar flake					1	4.8								
Bifacial thin. flake														
Broken flake	1	0.3	1	0.8	8	21.0	9	8.6					2	6.6
Shatter					7	20.5	7	73.0			5	41.0	3	125.0
Total Chert Debitage	1	0.3	1	0.8	20	75.3	20	111.1	4	18.7	9	132.8	9	145.7
NONCHERT ARTIFACTS														
Hammerstone													1	503.5
Pitted cobble													1	425.7
Total Nonchert Artifacts													2	929.2
MISC. MATERIAL														
Fire-cracked rock							1	0.5						
Unmodified rock														
Total Misc. Material							1	0.5						
PAGE TOTAL	1	0.3	1	0.8	21	75.8	21	111.6	4	18.7	9	132.8	11	1074.9
Utilized Flakes														

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	General Surface Collection Grid 1		General Surface Collection Grid 1		General Surface Collection Grid 1		General Surface Collection Grid 1		General Surface Collection Grid 1		General Surface Collection Grid 1		General Surface Collection Grid 1	
Unit 1		Row 3	Unit 2	Row 3	Unit 4	Row 3	Unit 5	Row 4	Unit 1	Row 4	Unit 2	Row 4	Unit 4	Row 4
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Thick biface							1	60.3						
Thin biface													1	6.0
Thin biface fragment														
Projectile point/Knife														
Undetermined biface														
Retouched flake														
Undetermined uniface														
Total Chert Tools							1	60.3					1	6.0
CHERT DEBITAGE														
Multidirectional core														
Undetermined core														
Primary flake	1	27.7	1	24.6			1	1.3	1	142.9			2	8.1
Secondary flake	1	31.7			1	11.3	1	0.4	1	3.4				
Tertiary flake	1	0.1	2	10.3	1	1.6	1	1.8	6	16.4			1	2.1
Bipolar flake	1	1.0												
Bifacial thin. flake	1	0.6					1	3.5						
Broken flake	4	1.4	3	2.6	1	0.1	4	3.7	13	5.7				
Shatter	14	352.0					12	81.6	14	117.0	1	5.2		
Total Chert Debitage	23	414.5	6	37.5	3	13.0	20	92.3	35	285.4	1	5.2	3	10.2
NONCHERT ARTIFACTS														
Hammerstone							1	849.3						
Pitted cobble														
Total Nonchert Artifacts							1	849.3						
MISC. MATERIAL														
Fire-cracked rock														
Unmodified rock									1	508.1				
Total Misc. Material									1	508.1				
PAGE TOTAL	23	414.5	6	37.5	3	13.0	22	1001.9	36	793.5	1	5.2	4	16.2
Utilized Flakes														

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Unit 5	General Surface Collection Grid 1	Row 5	General Surface Collection Grid 1 Unit 1	Row 5	General Surface Collection Grid 1 Unit 2	Row 5	General Surface Collection Grid 1 Unit 5	Row 6	General Surface Collection Grid 1 Unit 1	Row 6	General Surface Collection Grid 1 Unit 2	Row 6	General Surface Collection Grid 1 Unit 4	Row 6
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Thick biface														
Thin biface									2	20.2				
Thin biface fragment														
Projectile point/Knife													1	14.9
Undetermined biface														
Retouched flake														
Undetermined uniface					1	59.9								
Total Chert Tools					1	59.9			2	20.2				
CHERT DEBITAGE														
Multidirectional core			2	199.8					1	255.4				
Undetermined core														
Primary flake	2	24.2	1	7.0					1	4.8	1	3.0	1	48.6
Secondary flake	2	35.3			1	0.6			5	36.3				
Tertiary flake	2	46.9	6	9.3	1	3.0	4	1.5	12	40.7				
Bipolar flake														
Bifacial thin. flake	1	2.1	2	0.6										
Broken flake	3	2.9	13	7.5			1	2.5	11	14.5			1	25.1
Shatter	6	58.2	14	6.7			5	6.0	9	344.2	1	303.9	1	12.7
Total Chert Debitage	16	169.6	38	230.9	2	3.6	10	10.0	39	695.9	2	306.9	3	86.4
NONCHERT ARTIFACTS														
Hammerstone									3	2116.2				
Pitted cobble														
Total Nonchert Artifacts									3	2116.2				
MISC. MATERIAL														
Fire-cracked rock														
Unmodified rock														
Total Misc. Material														
PAGE TOTAL	16	169.6	38	230.9	3	63.5	10	10.0	44	2832.3	2	306.9	3	86.4
Utilized Flakes													1	

APPENDIX A
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	General Surface Collection Grid 1		General Surface Collection Grid 1		General Surface Collection Grid 1		General Surface Collection Grid 1		General Surface Collection Grid 1		General Surface Collection Grid 1		General Surface Collection Grid 1	
Unit 5		Row 7	Unit 1	Row 7	Unit 2	Row 7	Unit 4	Row 7	Unit 5	Row 8	Unit 1	Row 8	Unit 2	Row 8
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Thick biface														
Thin biface											1	0.5		
Thin biface fragment														
Projectile point/Knife														
Undetermined biface														
Retouched flake													1	15.8
Undetermined uniface														
Total Chert Tools											1	0.5	1	15.8
CHERT DEBITAGE														
Multidirectional core														
Undetermined core														
Primary flake	1	0.5	2	53.7			1	53.2	1	7.8	1	3.5		
Secondary flake	1	2.2	11	37.0					2	10.5	3	6.7	2	8.7
Tertiary flake	4	3.6	16	18.7	2	10.5	1	1.7	5	6.1	12	15.4		
Bipolar flake														
Bifacial thin. flake														
Broken flake	6	3.1	11	10.0	1	1.8	2	3.8	3	10.1	16	40.3	1	2.9
Shatter	5	19.1	20	129.2			3	18.7	3	4.0	8	10.9	1	1.7
Total Chert Debitage	17	28.5	60	248.6	3	12.3	7	77.4	14	38.5	40	76.8	4	13.3
NONCHERT ARTIFACTS														
Hammerstone														
Pitted cobble														
Total Nonchert Artifacts														
MISC. MATERIAL														
Fire-cracked rock			1	83.2					2	9.8	2	16.1		
Unmodified rock			1	339.2										
Total Misc. Material			2	422.4					2	9.8	2	16.1		
PAGE TOTAL	17	28.5	62	671.0	3	12.3	7	77.4	16	48.3	43	93.4	5	29.1
Utilized Flakes	1								1		1			

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	General Surface Collection Grid 1		General Surface Collection Grid 1		General Surface Collection Grid 1		General Surface Collection Grid 1		General Surface Collection Grid 1		General Surface Collection Grid 1		General Surface Collection Grid 1	
Unit 5		Row 9	Unit 1	Row 9	Unit 2	Row 9	Unit 5	Row 10	Unit 1	Row 10	Unit 2	Row 10	Unit 4	Row 10
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Thick biface									1	20.8				
Thin biface														
Thin biface fragment														
Projectile point/Knife														
Undetermined biface														
Retouched flake														
Undetermined uniface														
Total Chert Tools									1	20.8				
CHERT DEBITAGE														
Multidirectional core	1	34.8			1	184.7								
Undetermined core			1	152.0										
Primary flake			1	14.2					3	10.8				
Secondary flake			4	6.0	3	19.3			4	15.2			1	3.4
Tertiary flake	4	3.8	5	4.0	2	7.5	3	4.0	6	20.8	1	19.1	1	1.4
Bipolar flake														
Bifacial thin. flake									7	25.0				
Broken flake	1	0.3	10	12.4			2	1.0						
Shatter	2	127.1	6	54.1			2	4.3	6	95.5	1	54.2	1	1.8
Total Chert Debitage	8	166.0	27	242.7	6	211.5	7	9.3	26	167.3	2	73.3	3	6.6
NONCHERT ARTIFACTS														
Hammerstone														
Pitted cobble											1	694.4		
Total Nonchert Artifacts											1	694.4		
MISC. MATERIAL														
Fire-cracked rock							1	5.2						
Unmodified rock							1	160.3	1	335.0				
Total Misc. Material							2	165.5	1	335.0				
PAGE TOTAL	8	166.0	27	242.7	6	211.5	9	174.8	28	523.1	3	767.7	3	6.6
Utilized Flakes									2		2		2	

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Unit 5	Machine Trench 1		Machine Trench 1 Piece Plot A		Machine Trench 1 Piece Plot B		General Surface Collection Grid 1 Row 5 Unit 1 Piece Plot 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS								
Thick biface	1	44.7						
Thin biface	2	7.9	1	6.9				
Thin biface fragment					1	3.3		
Projectile point/Knife	1	19.1					1	11.3
Undetermined biface	1	2.1						
Retouched flake								
Undetermined uniface								
Total Chert Tools	5	73.8	1	6.9	1	3.3	1	11.3
CHERT DEBITAGE								
Multidirectional core	2	539.1						
Undetermined core								
Primary flake	8	482.4						
Secondary flake	14	307.3						
Tertiary flake	20	185.3						
Bipolar flake	1	4.2						
Bifacial thin. flake	3	14.0						
Broken flake	15	76.3						
Shatter	38	2879.6						
Total Chert Debitage	101	4488.2						
NONCHERT ARTIFACTS								
Hammerstone	3	761.6						
Pitted cobble								
Total Nonchert Artifacts	3	761.6						
MISC. MATERIAL								
Fire-cracked rock	6	730.4						
Unmodified rock	15	5235.5						
Total Misc. Material	21	5965.9						
PAGE TOTAL	130	11289.5	1	6.9	1	3.3	1	11.3
Utilized Flakes	3							

APPENDIX A
(11MO887)

	General Surface Collection Grid 1 Row 13 Unit 1 N	W(g)	General Surface Collection Grid 1 Row 13 Unit 2 N	W(g)	General Surface Collection Grid 1 Row 14 Unit 1 N	W(g)	General Surface Collection Grid 1 Row 14 Unit 2 N	W(g)	General Surface Collection Grid 1 Row 15 Unit 1 N	W(g)	General Surface Collection Grid 1 Row 15 Unit 2 N	W(g)	General Surface Collection Grid 1 Row 16 Unit 1 N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Biface fragment			1	0.3							2	18.0		
Undetermined uniface														
Total Chert Tools			1	0.3							2	18.0		
CHERT DEBITAGE														
Multidirectional core													1	563.0
Bipolar core											1	181.5		
Undetermined core			1	222.1										
Primary flake			4	28.7							2	40.1	1	13.2
Secondary flake			7	39.8	2	7.2	5	32.3	2	3.5	5	65.1		
Tertiary flake	1	2.0	9	6.7	4	6.4	13	5.8	2	18.0	7	5.7	4	4.8
Bifacial thin. flake														
Broken flake			11	37.1	12	1.9	14	36.3	6	5.3	7	11.8	4	20.5
Shatter	1	1.3	15	19.6	7	40.9	5	128.0	1	4.8	12	206.8	2	77.9
Total Chert Debitage	2	3.3	47	354.0	25	56.4	37	202.4	11	31.6	34	511.0	12	679.4
NONCHERT ARTIFACTS														
Hammerstone			1	292.8			1	402.8						
Pitted cobble														
Total Nonchert Artifacts			1	292.8			1	402.8						
MISC. MATERIAL														
Fire-cracked rock			2	9.3			3	50.0			3	14.2		
Unmodified rock	1	230.2	1	160.0							1	213.8		
Total Misc. Material	1	230.2	3	169.3			3	50.0			4	228.0		
PAGE TOTAL	3	233.5	52	816.4	25	56.4	41	655.2	11	31.6	40	757.0	12	679.4
Utilized Flakes			2						1					

APPENDIX A
(11MO887)

	General Surface Collection Grid 1 Row 16 Unit 2 N	W(g)	General Surface Collection Grid 1 Row 17 Unit 1 N	W(g)	General Surface Collection Grid 1 Row 17 Unit 2 N	W(g)	General Surface Collection Grid 1 Row 18 Unit 1 N	W(g)	General Surface Collection Grid 1 Row 18 Unit 2 N	W(g)	General Surface Collection Grid 1 Row 19 Unit 1 N	W(g)	General Surface Collection Grid 1 Row 19 Unit 2 N	W(g)
CHERT TOOLS														
Rough biface													1	141.0
Thick biface	1	20.4												
Biface fragment														
Undetermined uniface													1	26.6
Total Chert Tools	1	20.4											2	167.6
CHERT DEBITAGE														
Multidirectional core									1	120.1			2	641.0
Bipolar core	2	452.1									1	120.1	1	575.5
Undetermined core														
Primary flake	2	10.6	1	7.3					3	13.2				
Secondary flake	2	2.1	1	1.2	6	96.4	7	44.0	14	132.7	1	3.3	9	163.7
Tertiary flake	13	11.7	5	2.8	12	9.3	3	0.8	11	6.9	1	2.0	4	18.3
Bifacial thin. flake														
Broken flake	7	4.3	5	24.8	9	4.9	2	1.3	20	6.6	5	21.8	10	7.3
Shatter	15	140.8			5	39.8	3	41.5	16	191.0	2	171.1	12	58.3
Total Chert Debitage	41	621.6	12	36.1	32	150.4	15	87.6	65	470.5	10	318.3	38	1464.1
NONCHERT ARTIFACTS														
Hammerstone	1	421.6												
Pitted cobble													1	934.5
Total Nonchert Artifacts	1	421.6											1	934.5
MISC. MATERIAL														
Fire-cracked rock									2	5.6	1	75.7		
Unmodified rock	1	287.3												
Total Misc. Material	1	287.3							2	5.6	1	75.7		
PAGE TOTAL	44	1350.9	12	36.1	32	150.4	15	87.6	67	476.1	11	394.0	41	2566.2
Utilized Flakes									1		1			

APPENDIX A
(11MO887)

	General Surface Collection Grid 1 Row 20 Unit 1		General Surface Collection Grid 1 Row 20 Unit 2		General Surface Collection Grid 1 Row 21 Unit 1		General Surface Collection Grid 1 Row 21 Unit 2		General Surface Collection Grid 1 Row 22 Unit 1		General Surface Collection Grid 1 Row 22 Unit 2		Machine Trench 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface			1	19.5									1	42.8
Biface fragment													1	10.3
Undetermined uniface														
Total Chert Tools			1	19.5									2	53.1
CHERT DEBITAGE														
Multidirectional core			2	283.4										
Bipolar core													1	387.0
Undetermined core														
Primary flake	1	33.6			1	7.1	2	25.5			2	4.2	3	166.0
Secondary flake	1	1.0	3	56.5	6	56.3	1	5.7	1	4.9	3	5.8	7	67.5
Tertiary flake			4	0.8	5	1.4					5	2.8	14	164.9
Bifacial thin. flake											1	1.2		
Broken flake	1	1.0	6	6.4	5	4.4					3	11.0	9	33.5
Shatter			7	111.9	5	26.9	1	17.6	3	64.0	5	8.9	13	1040.7
Total Chert Debitage	3	35.6	22	459.0	22	96.1	4	48.8	4	68.9	19	33.9	47	1859.6
NONCHERT ARTIFACTS														
Hammerstone														
Pitted cobble													1	658.4
Total Nonchert Artifacts													1	658.4
MISC. MATERIAL														
Fire-cracked rock			1	22.6							1	5.7	2	384.4
Unmodified rock														
Total Misc. Material			1	22.6							1	5.7	2	384.4
PAGE TOTAL	3	35.6	24	501.1	22	96.1	4	48.8	4	68.9	20	39.6	52	2955.5
Utilized Flakes			1		2						1			

APPENDIX A
(11MO888)

	General Surface Collection Grid 1 Row 29 Unit 1 N	W(g)	General Surface Collection Grid 1 Row 29 Unit 2 N	W(g)	General Surface Collection Grid 1 Row 30 Unit 1 N	W(g)	General Surface Collection Grid 1 Row 30 Unit 2 N	W(g)	General Surface Collection Grid 1 Row 31 Unit 1 N	W(g)	General Surface Collection Grid 1 Row 31 Unit 2 N	W(g)	General Surface Collection Grid 1 Row 31 Unit 6 N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface											1	2.6		
Projectile point/Knife					1	10.6								
End scraper														
Retouched flake											8	151.5		
Retouched blades														
Perforating tool														
Graver														
Wedge														
Total Chert Tools					1	10.6					9	154.1		
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core														
Bipolar core														
Core fragment														
Exhausted core														
Primary flake	1	11.9	1	1.0	2	11.1	6	47.4	1	2.8	8	56.8		
Secondary flake			3	6.4	3	40.5	13	28.6	1	2.8	14	39.2		
Tertiary flake					2	0.5	8	4.0	3	7.1	6	3.6		
Bifacial thin. flake			5	5.1			7	16.6	3	2.4	40	28.0		
Broken flake			5	20.4	4	5.3	10	5.0	4	11.8	42	47.0	3	12.9
Shatter	1	113.6	8	439.4	7	16.0	24	253.3	6	236.7	46	1302.1		
Blades														
Total Chert Debitage	2	125.5	22	472.3	18	73.4	68	354.9	18	263.6	156	1476.7	3	12.9
NONCHERT ARTIFACTS														
Hammerstone														
Axe														
Pitted cobble			1	268.6										
Abrader														
Metate fragment														
Total Nonchert Artifacts			1	268.6										
MISC. MATERIAL														
Fire-cracked rock							2	26.1			5	40.8		
Unmodified rock														
Total Misc. Material							2	26.1			5	40.8		
PAGE TOTAL	2	125.5	23	740.9	19	84.0	70	381.0	18	263.6	170	1671.6	3	12.9
Utilized Flakes							7				7		1	

APPENDIX A
(11MO888)

	General Surface Collection Grid 1 Row 31 Unit 7		General Surface Collection Grid 1 Row 32 Unit 1		General Surface Collection Grid 1 Row 32 Unit 2		General Surface Collection Grid 1 Row 32 Unit 6		General Surface Collection Grid 1 Row 32 Unit 7		General Surface Collection Grid 1 Row 33 Unit 1		General Surface Collection Grid 1 Row 33 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Projectile point/Knife														
End scraper			1	5.7										
Retouched flake					7	49.9					2	22.1		
Retouched blades														
Perforating tool														
Graver	1	26.0			1	10.9								
Wedge					1	122.2								
Total Chert Tools	1	26.0	1	5.7	9	183.0					2	22.1		
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core					2	201.8							3	679.0
Bipolar core														
Core fragment														
Exhausted core														
Primary flake			1	4.1	4	25.9					3	15.5		
Secondary flake	1	0.6	1	2.1	18	41.8					9	11.8		
Tertiary flake	2	6.6			6	10.7					4	1.5		
Bifacial thin. flake			4	2.9	19	14.6	1	0.6	1	1.6	2	0.9		
Broken flake	1	1.2	2	3.0	14	19.2	2	1.8			11	14.3		
Shatter			8	144.9	24	1285.4	3	140.0			7	227.1		
Blades														
Total Chert Debitage	4	8.4	16	157.0	87	1599.4	6	142.4	1	1.6	36	271.1	3	679.0
NONCHERT ARTIFACTS														
Hammerstone					1	151.3								
Axe														
Pitted cobble			1	189.5										
Abrader					1	13.9								
Metate fragment														
Total Nonchert Artifacts			1	189.5	2	165.2								
MISC. MATERIAL														
Fire-cracked rock					5	74.1								
Unmodified rock														
Total Misc. Material					5	74.1								
PAGE TOTAL	5	34.4	18	352.2	103	2021.7	6	142.4	1	1.6	38	293.2	3	679.0
Utilized Flakes					9						5			

APPENDIX A
(11MO888)

	General Surface Collection Grid 1 Row 33 Unit 6		General Surface Collection Grid 1 Row 33 Unit 7		General Surface Collection Grid 1 Row 34 Unit 1		General Surface Collection Grid 1 Row 34 Unit 2		General Surface Collection Grid 1 Row 34 Unit 6		General Surface Collection Grid 1 Row 34 Unit 7		General Surface Collection Grid 1 Row 35 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface					1	6.1	1	6.1						
Projectile point/Knife														
End scraper														
Retouched flake			1	7.6	3	94.2	2	38.7	2	40.0	1	8.2	3	65.0
Retouched blades														
Perforating tool														
Graver			1	8.7	1	6.5								
Wedge					1	336.8								
Total Chert Tools			2	16.3	6	443.6	3	44.8	2	40.0	1	8.2	3	65.0
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core														
Bipolar core														
Core fragment														
Exhausted core														
Primary flake					8	92.0	5	27.5	1	4.6			4	71.3
Secondary flake	2	5.1	2	5.0	11	44.4	8	33.4					2	215.7
Tertiary flake					6	4.0	3	13.6	1	0.7			2	2.0
Bifacial thin. flake					19	10.5	3	6.4					2	0.6
Broken flake	4	23.0			15	13.6	7	6.3	3	6.2			4	3.4
Shatter					36	702.2	16	257.2	2	120.8	2	134.1	10	348.8
Blades														
Total Chert Debitage	6	28.1	2	5.0	95	866.7	42	344.4	7	132.3	2	134.1	24	641.8
NONCHERT ARTIFACTS														
Hammerstone					1	195.2	1	46.1						
Axe														
Pitted cobble														
Abrader														
Metate fragment														
Total Nonchert Artifacts					1	195.2	1	46.1						
MISC. MATERIAL														
Fire-cracked rock					1	5.7							1	17.8
Unmodified rock														
Total Misc. Material					1	5.7							1	17.8
PAGE TOTAL	6	28.1	4	21.3	103	1511.2	46	435.3	9	172.3	3	142.3	28	724.6
Utilized Flakes	2		1		1		5						2	

APPENDIX A
(11MO888)

	General Surface Collection Grid 1 Row 35 Unit 2		General Surface Collection Grid 1 Row 35 Unit 5		General Surface Collection Grid 1 Row 36 Unit 1		General Surface Collection Grid 1 Row 36 Unit 2		General Surface Collection Grid 1 Row 36 Unit 6		General Surface Collection Grid 1 Row 37 Unit 1		General Surface Collection Grid 1 Row 37 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface					1	78.6	1	31.4						
Thin biface											1	4.0	1	6.7
Projectile point/Knife														
End scraper														
Retouched flake	5	49.2			4	18.8	3	88.8	1	6.1				
Retouched blades														
Perforating tool														
Graver							1	69.7	1	4.1				
Wedge													1	140.6
Total Chert Tools	5	49.2			5	97.4	5	189.9	2	10.2	1	4.0	2	147.3
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core	1	148.3					1	182.5			2	182.6	1	74.8
Bipolar core							1	52.9						
Core fragment							1	10.8						
Exhausted core														
Primary flake	1	54.1			3	8.5	6	158.2	1	15.0	4	309.2	4	309.2
Secondary flake	6	17.5	1	7.8	11	42.4	14	86.3			4	12.4	4	12.4
Tertiary flake					9	3.2	14	6.5	1	0.3	1	0.4	1	0.4
Bifacial thin. flake	7	2.1			4	5.0	9	49.8			2	1.7	2	1.7
Broken flake	9	35.8			17	33.7	14	7.1	2	1.6	1	3.2	1	3.2
Shatter	15	781.9			18	521.1	30	371.2	1	38.2	4	26.5	6	313.3
Blades														
Total Chert Debitage	39	1039.7	1	7.8	62	613.9	90	925.3	5	55.1	18	536.0	19	715.0
NONCHERT ARTIFACTS														
Hammerstone	1	573.7			3	625.6								
Axe														
Pitted cobble														
Abrader														
Metate fragment														
Total Nonchert Artifacts	1	573.7			3	625.6								
MISC. MATERIAL														
Fire-cracked rock	2	72.3					6	23.9					1	149.3
Unmodified rock													1	469.7
Total Misc. Material	2	72.3					6	23.9					2	619.0
PAGE TOTAL	47	1734.9	1	7.8	70	1336.9	101	1139.1	7	65.3	19	540.0	23	1481.3
Utilized Flakes	2						5				2		2	

APPENDIX A
(11MO888)

	General Surface Collection Grid 1 Row 37 Unit 6		General Surface Collection Grid 1 Row 37 Unit 7		General Surface Collection Grid 1 Row 38 Unit 1		General Surface Collection Grid 1 Row 38 Unit 2		General Surface Collection Grid 1 Row 38 Unit 5		General Surface Collection Grid 1 Row 38 Unit 6		General Surface Collection Grid 1 Row 39 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface					1	35.7								
Thick biface														
Thin biface														
Projectile point/Knife														
End scraper														
Retouched flake			1	38.3	4	91.3							1	6.0
Retouched blades														
Perforating tool									1	98.5				
Graver														
Wedge							1	49.9						
Total Chert Tools			1	38.3	5	127.0	1	49.9	1	98.5			1	6.0
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core														
Bipolar core													1	70.3
Core fragment														
Exhausted core														
Primary flake					1	6.3							3	25.9
Secondary flake	1	8.1			7	18.1	2	6.1	1	1.2	1	26.9	3	21.0
Tertiary flake							2	8.5			1	1.0	1	0.7
Bifacial thin. flake					2	5.5	4	2.0	1	0.7			6	7.4
Broken flake			1	3.2	1	0.4	6	29.9					6	4.0
Shatter	1	50.7			3	17.5	5	146.2			1	34.2	7	69.1
Blades														
Total Chert Debitage	2	58.8	1	3.2	14	47.8	19	192.7	2	1.9	3	62.1	27	198.4
NONCHERT ARTIFACTS														
Hammerstone														
Axe														
Pitted cobble														
Abrader													1	49.8
Metate fragment														
Total Nonchert Artifacts													1	49.8
MISC. MATERIAL														
Fire-cracked rock					2	88.0								
Unmodified rock														
Total Misc. Material					2	88.0								
PAGE TOTAL	2	58.8	2	41.5	21	262.8	20	242.6	3	100.4	3	62.1	29	254.2
Utilized Flakes					2		2						1	

APPENDIX A
(11MO888)

	General Surface Collection Grid 1 Row 39 Unit 2		General Surface Collection Grid 1 Row 39 Unit 6		General Surface Collection Grid 1 Row 39 Unit 7		General Surface Collection Grid 1 Row 40 Unit 1		General Surface Collection Grid 1 Row 40 Unit 3		General Surface Collection Grid 1 Row 40 Unit 6		General Surface Collection Grid 1 Row 40 Unit 7	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Projectile point/Knife														
End scraper														
Retouched flake	2	16.6					2	58.8	3	25.6				
Retouched blades			1	3.0										
Perforating tool														
Graver													1	20.8
Wedge														
Total Chert Tools	2	16.6	1	3.0			2	58.8	3	25.6			1	20.8
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core									1	80.5				
Bipolar core														
Core fragment														
Exhausted core														
Primary flake	1	29.0	2	1.9	1	5.5	2	3.9						
Secondary flake	10	32.1	1	60.2			8	26.8	6	32.0			2	25.8
Tertiary flake	5	5.9					2	1.8			1	0.5		
Bifacial thin. flake	12	5.8	1	0.2			5	4.9	2	1.2				
Broken flake	10	38.3	2	2.3			7	14.9	6	4.2	2	11.4	2	7.1
Shatter	4	44.6	2	3.5	1	70.4	5	127.6	3	4.7	4	174.4	2	46.1
Blades							1	5.9						
Total Chert Debitage	42	155.7	8	68.1	2	75.9	30	185.8	18	122.6	7	186.3	6	79.0
NONCHERT ARTIFACTS														
Hammerstone														
Axe														
Pitted cobble														
Abrader														
Metate fragment														
Total Nonchert Artifacts														
MISC. MATERIAL														
Fire-cracked rock											1	5.9		
Unmodified rock														
Total Misc. Material											1	5.9		
PAGE TOTAL	44	172.3	9	71.1	2	75.9	32	244.6	21	148.2	8	192.2	7	99.8
Utilized Flakes	3		1		1		2		2		1			

APPENDIX A
(11MO888)

	General Surface Collection Grid 1 Row 41 Unit 1		General Surface Collection Grid 1 Row 41 Unit 2		General Surface Collection Grid 1 Row 41 Unit 6		General Surface Collection Grid 1 Row 41 Unit 7		General Surface Collection Grid 1 Row 42 Unit 1		General Surface Collection Grid 1 Row 42 Unit 2		General Surface Collection Grid 1 Row 42 Unit 6	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface			1	27.4										
Thin biface														
Projectile point/Knife														
End scraper														
Retouched flake	3	43.0												
Retouched blades														
Perforating tool														
Graver														
Wedge														
Total Chert Tools	3	43.0	1	27.4										
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core	1	199.4	2	276.4										
Bipolar core														
Core fragment														
Exhausted core														
Primary flake	2	5.0	5	10.4							1	2.1		
Secondary flake	11	37.9	8	8.8			2	15.1	4	27.9	1	3.6	1	1.5
Tertiary flake	2	1.6									1	1.0		
Bifacial thin. flake	6	7.4	8	4.5					1	1.3	3	7.6		
Broken flake	13	19.1	11	13.0	3	4.5			7	7.9	4	5.2	1	1.8
Shatter	8	166.2	7	388.2	1	33.0	3	61.8	1	13.5	2	55.6	1	1.0
Blades														
Total Chert Debitage	43	436.6	41	701.3	4	37.5	5	76.9	13	50.6	12	75.1	3	4.3
NONCHERT ARTIFACTS														
Hammerstone														
Axe														
Pitted cobble														
Abrader														
Metate fragment														
Total Nonchert Artifacts														
MISC. MATERIAL														
Fire-cracked rock			5	42.6					1	7.4				
Unmodified rock														
Total Misc. Material			5	42.6					1	7.4				
PAGE TOTAL	46	479.6	47	771.3	4	37.5	5	76.9	14	58.0	12	75.1	3	4.3
Utilized Flakes	6		3				1				1			

APPENDIX A
(11MO888)

	General Surface Collection Grid 1 Row 42 Unit 7		General Surface Collection Grid 1 Row 43 Unit 1		General Surface Collection Grid 1 Row 43 Unit 2		General Surface Collection Grid 1 Row 43 Unit 5		General Surface Collection Grid 1 Row 43 Unit 6		General Surface Collection Grid 1 Row 44 Unit 1		General Surface Collection Grid 1 Row 44 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface			1	2.5									1	12.5
Thin biface														
Projectile point/Knife														
End scraper														
Retouched flake											1	4.1	2	16.0
Retouched blades														
Perforating tool														
Graver														
Wedge														
Total Chert Tools			1	2.5							1	4.1	3	28.5
CHERT DEBITAGE														
Plano-convex core													1	13.4
Multidirectional core														
Bipolar core														
Core fragment														
Exhausted core														
Primary flake											2	58.2	4	65.4
Secondary flake	1	4.0	1	19.0	2	0.1					1	3.8	5	26.0
Tertiary flake			2	0.5	2	1.6	1	1.0			1	2.5	3	5.8
Bifacial thin. flake					5	1.8					1	0.5	3	1.4
Broken flake			3	6.9	2	1.9			3	16.9	2	0.3	6	3.6
Shatter	1	7.4	3	446.8	4	37.5			2	126.3	5	64.3	4	33.9
Blades														
Total Chert Debitage	2	11.4	9	473.2	15	42.9	1	1.0	5	143.2	12	129.6	26	149.5
NONCHERT ARTIFACTS														
Hammerstone			1	337.6										
Axe														
Pitted cobble														
Abrader														
Metate fragment														
Total Nonchert Artifacts			1	337.6										
MISC. MATERIAL														
Fire-cracked rock														
Unmodified rock														
Total Misc. Material														
PAGE TOTAL	2	11.4	11	813.3	15	42.9	1	1.0	5	143.2	13	133.7	29	178.0
Utilized Flakes													1	

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	General Surface Collection Grid 1 Row 44 Unit 6		General Surface Collection Grid 1 Row 44 Unit 7		General Surface Collection Grid 1 Row 45 Unit 1		General Surface Collection Grid 1 Row 45 Unit 2		General Surface Collection Grid 1 Row 45 Unit 6		General Surface Collection Grid 1 Row 45 Unit 7		General Surface Collection Grid 1 Row 46 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Projectile point/Knife														
End scraper														
Retouched flake			1	4.4									1	35.3
Retouched blades														
Perforating tool							1	20.7						
Graver														
Wedge														
Total Chert Tools			1	4.4			1	20.7					1	35.3
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core														
Bipolar core														
Core fragment														
Exhausted core														
Primary flake			1	53.3			2	33.7	1	7.3				
Secondary flake	1	20.2	1	1.3	3	11.3	2	6.9	1	1.0	2	1.9	6	20.6
Tertiary flake					1	1.7	4	4.2					2	0.9
Bifacial thin. flake					2	1.1	2	2.1					7	2.5
Broken flake	3	1.2	4	11.7	10	6.5	17	11.2			1	1.2	7	17.0
Shatter	1	25.3	1	1.4	4	52.1	5	170.2	1	32.7	2	0.9	4	8.3
Blades														
Total Chert Debitage	5	46.7	7	67.7	20	72.7	32	228.3	3	41.0	5	4.0	26	49.3
NONCHERT ARTIFACTS														
Hammerstone					1	288.9								
Axe														
Pitted cobble														
Abrader														
Metate fragment														
Total Nonchert Artifacts					1	288.9								
MISC. MATERIAL														
Fire-cracked rock														
Unmodified rock							1	415.0						
Total Misc. Material							1	415.0						
PAGE TOTAL	5	46.7	8	72.1	21	361.6	34	664.0	3	41.0	5	4.0	27	84.6
Utilized Flakes					1		2						1	

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	General Surface Collection Grid 1 Row 46 Unit 2		General Surface Collection Grid 1 Row 47 Unit 1		General Surface Collection Grid 1 Row 47 Unit 2		General Surface Collection Grid 1 Row 48 Unit 1		General Surface Collection Grid 1 Row 48 Unit 2		General Surface Collection Grid 1 Row 48 Unit 7		General Surface Collection Grid 1 Row 49 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface	2	8.8												
Projectile point/Knife														
End scraper														
Retouched flake	3	20.7												
Retouched blades														
Perforating tool														
Graver														
Wedge														
Total Chert Tools	5	29.5												
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core			1	67.4										
Bipolar core														
Core fragment														
Exhausted core														
Primary flake	1	2.4			2	2.3							1	1.8
Secondary flake	7	18.9			4	33.4	1	6.1	2	10.2	1	5.7	4	3.9
Tertiary flake	1	2.6	3	0.8	3	2.6	1	0.7	1	0.1			2	4.8
Bifacial thin. flake	10	8.7	2	0.9	1	1.0	1	0.7					4	3.2
Broken flake	12	5.3	6	5.8	6	8.3	8	6.1	9	4.2			8	22.9
Shatter	5	36.1	4	141.6	2	43.9	3	53.7	2	2.5	1	70.3	4	24.7
Blades									1	3.8				
Total Chert Debitage	36	74.0	16	216.5	18	91.5	14	67.3	15	20.8	2	76.0	23	61.3
NONCHERT ARTIFACTS														
Hammerstone														
Axe														
Pitted cobble														
Abrader														
Metate fragment														
Total Nonchert Artifacts														
MISC. MATERIAL														
Fire-cracked rock			1	2.1	1	19.2								
Unmodified rock														
Total Misc. Material			1	2.1	1	19.2								
PAGE TOTAL	41	103.5	17	218.6	19	110.7	14	67.3	15	20.8	2	76.0	23	61.3
Utilized Flakes			1		1				1		1		1	

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	General Surface Collection Grid 1 Row 49 Unit 2		General Surface Collection Grid 1 Row 50 Unit 1		General Surface Collection Grid 1 Row 50 Unit 2		General Surface Collection Grid 1 Row 50 Unit 7		General Surface Collection Grid 7 Row 1 Unit 1		General Surface Collection Grid 7 Row 2 Unit 1		General Surface Collection Grid 7 Row 3 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface	1	38.5			1	15.7								
Thin biface													1	0.4
Projectile point/Knife														
End scraper														
Retouched flake														
Retouched blades														
Perforating tool														
Graver														
Wedge														
Total Chert Tools	1	38.5			1	15.7							1	0.4
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core	1	116.3												
Bipolar core														
Core fragment														
Exhausted core														
Primary flake									2	17.7	1	0.6		
Secondary flake	6	16.6	6	10.0	5	4.7			16	43.3	8	34.7	2	3.9
Tertiary flake	4	4.8	1	0.5	3	1.3			14	3.5	5	2.2	1	0.5
Bifacial thin. flake	3	1.3	2	1.2					4	8.1	5	6.6	1	1.5
Broken flake	8	11.2	3	0.5	4	1.7	2	14.6	31	12.0	20	17.9	3	11.4
Shatter	2	6.0	2	54.1	3	12.4	1	2.4	9	135.4	5	13.1	1	2.7
Blades														
Total Chert Debitage	24	156.2	14	66.3	15	20.1	3	17.0	76	220.0	44	75.1	8	20.0
NONCHERT ARTIFACTS														
Hammerstone														
Axe														
Pitted cobble														
Abrader														
Metate fragment														
Total Nonchert Artifacts														
MISC. MATERIAL														
Fire-cracked rock														
Unmodified rock														
Total Misc. Material														
PAGE TOTAL	25	194.7	14	66.3	16	35.8	3	17.0	76	220.0	44	75.1	9	20.4
Utilized Flakes							1		5		3		1	

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	General Surface Collection Grid 7 Row 4 Unit 1		General Surface Collection Grid 7 Row 5 Unit 1		General Surface Collection Grid 7 Row 6 Unit 1		General Surface Collection Grid 7 Row 7 Unit 1		General Surface Collection Grid 7 Row 8 Unit 1		Machine Trench 5		Machine Trench 7	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface													1	50.5
Thick biface													1	50.2
Thin biface														
Projectile point/Knife														
End scraper											1	16.9	2	95.2
Retouched flake													2	61.4
Retouched blades														
Perforating tool													2	21.2
Graver														
Wedge													1	121.5
Total Chert Tools											1	16.9	9	400.0
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core													6	954.8
Bipolar core														
Core fragment														
Exhausted core													1	28.3
Primary flake	1	0.2							1	37.3			7	363.5
Secondary flake	4	2.8			3	12.9	1	1.5	1	0.4	3	27.7	17	234.9
Tertiary flake	4	0.7	3	2.4	2	1.3			2	2.1			2	1.0
Bifacial thin. flake	1	1.3									1	1.7	2	20.2
Broken flake	15	4.8	3	3.8	4	6.0	1	0.4	2	2.0	1	2.9	13	38.7
Shatter	5	146.3	3	128.0	1	30.9			6	339.7	4	225.8	24	2424.5
Blades														
Total Chert Debitage	30	156.1	9	134.2	10	51.1	2	1.9	12	381.5	9	258.1	72	4065.9
NONCHERT ARTIFACTS														
Hammerstone													1	634.4
Axe														
Pitted cobble													1	649.0
Abrader														
Metate fragment														
Total Nonchert Artifacts													2	1283.4
MISC. MATERIAL														
Fire-cracked rock													13	261.8
Unmodified rock									1	0.4			1	973.5
Total Misc. Material									1	0.4			14	1235.3
PAGE TOTAL	30	156.1	9	134.2	10	51.1	2	1.9	13	381.9	10	275.0	97	6984.6
Utilized Flakes					1						1		20	

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	Machine Trench 7 south extension		Machine Trench 13		Machine Trench 13 south extension		Machine Trench 15		Machine Trench 16		Machine Trench 17		Machine Trench 18	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface					1	41.2								
Thin biface														
Projectile point/Knife														
End scraper														
Retouched flake					1	28.9	1	25.0						
Retouched blades														
Perforating tool											1	3.2		
Graver														
Wedge														
Total Chert Tools					2	70.1	1	25.0			1	3.2		
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core	1	112.4												
Bipolar core														
Core fragment														
Exhausted core														
Primary flake					1	50.9			2	36.2	3	163.9		
Secondary flake	2	4.2	3	66.1	1	13.1	3	10.1	6	158.2	10	95.0		
Tertiary flake							2	33.2	1	4.5	5	8.0		
Bifacial thin. flake											2	3.7		
Broken flake	1	0.1	1	4.8	1	4.1	5	25.4	4	25.3	17	44.0		
Shatter	5	358.9	3	173.7			5	466.2	2	146.1	14	329.8	4	176.3
Blades														
Total Chert Debitage	9	475.6	7	244.6	3	68.1	15	534.9	15	370.3	51	644.4	4	176.3
NONCHERT ARTIFACTS														
Hammerstone			2	548.5			2	1263.0						
Axe														
Pitted cobble			1	512.1										
Abrader														
Metate fragment														
Total Nonchert Artifacts			3	1060.6			2	1263.0						
MISC. MATERIAL														
Fire-cracked rock					2	221.8			2	41.3	12	228.7		
Unmodified rock			1	835.6					2	498.6	1	25.9		
Total Misc. Material			1	835.6	2	221.8			4	539.9	13	254.6		
PAGE TOTAL	9	475.6	11	2140.8	7	360.0	18	1822.9	19	910.2	65	902.2	4	176.3
Utilized Flakes			1		3		2		3		3			

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	Machine Trench 19		Machine Trench 20		Machine Trench 21		Machine Trench 22		Machine Trench 22 south extension plow zone		Machine Trench 22 south extension below plow zone		Machine Trench 23	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface			1	181.6										
Thick biface														
Thin biface														
Projectile point/Knife														
End scraper							2	33.0						
Retouched flake							1	40.1						
Retouched blades														
Perforating tool														
Graver														
Wedge														
Total Chert Tools			1	181.6			3	73.1						
CHERT DEBITAGE														
Plano-convex core													1	570.9
Multidirectional core							1	29.5	1	187.1				
Bipolar core														
Core fragment														
Exhausted core														
Primary flake			1	28.2			1	12.7						
Secondary flake	1	16.5	3	30.6			6	10.0	2	34.9	1	2.1		
Tertiary flake			3	3.0	1	0.4	4	3.8	2	2.2				
Bifacial thin. flake							1	1.3						
Broken flake			2	0.8			10	112.6	3	3.4				
Shatter	3	137.6	3	227.2	4	319.2	6	619.7	1	1.8	1	103.6		
Blades														
Total Chert Debitage	4	154.1	12	289.8	5	319.6	29	789.6	9	229.4	2	105.7		
NONCHERT ARTIFACTS														
Hammerstone														
Axe														
Pitted cobble														
Abrader														
Metate fragment														
Total Nonchert Artifacts														
MISC. MATERIAL														
Fire-cracked rock	2	106.6	3	60.8	1	6.1	2	238.0						
Unmodified rock	1	460.0	2	40.0			1	15.5						
Total Misc. Material	3	566.6	5	100.8	1	6.1	3	253.5						
PAGE TOTAL	7	720.7	18	572.2	6	325.7	35	1116.2	9	229.4	2	105.7	0	0.0
Utilized Flakes							1							

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	Machine Trench 25 plow zone		Machine Trench 25 below plow zone		Machine Trench 25 artifact concentration		Feature 8 north 1/2 base of plow zone		Feature 8 west 1/2		Feature 8 east 1/2		Piece plot 3 Collection Grid 1 Row 31 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface	1	48.2												
Thick biface	1	19.7	1	47.0	1	34.4								
Thin biface	1	6.0	1	20.1	1	3.1							1	35.8
Projectile point/Knife			1	5.1										
End scraper	1	13.2												
Retouched flake	1	2.1	4	10.6	1	3.8			1	16.7				
Retouched blades														
Perforating tool			1	34.5										
Graver														
Wedge														
Total Chert Tools	5	89.2	8	117.3	3	41.3			1	16.7			1	35.8
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core	1	61.4	1	95.1										
Bipolar core														
Core fragment														
Exhausted core														
Primary flake	10	89.4	4	65.6	10	15.9								
Secondary flake	24	143.2	26	110.4	50	94.6			1	1.5	3	7.1		
Tertiary flake	26	28.4	11	21.4	36	13.8			2	0.3				
Bifacial thin. flake	1	9.5			39	39.1			1	0.4				
Broken flake	41	135.0	38	55.8	81	64.9	1	0.1	9	1.6	2	0.2		
Shatter	66	1638.5	19	199.1	16	97.1	2	10.2	4	27.4	1	0.4		
Blades														
Total Chert Debitage	168	2105.4	99	547.4	232	325.4	3	10.3	17	31.2	6	7.7		
NONCHERT ARTIFACTS														
Hammerstone	2	1216.2	1	627.0										
Axe														
Pitted cobble	1	729.2												
Abrader														
Metate fragment	1	139.3												
Total Nonchert Artifacts	4	2084.7	1	627.0										
MISC. MATERIAL														
Fire-cracked rock	17	403.7	17	491.8										
Unmodified rock	11	3721.0												
Total Misc. Material	28	4124.7	17	491.8										
PAGE TOTAL	205	8404.0	125	1783.5	235	366.7	3	10.3	18	47.9	6	7.7	1	35.8
Utilized Flakes	9		15											

	Piece plot 4 Collection Grid 1 Row 48 Unit 1		Piece plot 24 Machine Trench 22	
	N	W(g)	N	W(g)
CHERT TOOLS				
Rough biface				
Thick biface				
Thin biface				
Projectile point/Knife			1	5.9
End scraper				
Retouched flake				
Retouched blades				
Perforating tool				
Graver				
Wedge				
Total Chert Tools			1	5.9
CHERT DEBITAGE				
Plano-convex core				
Multidirectional core				
Bipolar core				
Core fragment				
Exhausted core				
Primary flake				
Secondary flake				
Tertiary flake				
Bifacial thin. flake				
Broken flake				
Shatter				
Blades				
Total Chert Debitage				
NONCHERT ARTIFACTS				
Hammerstone				
Axe	1	557.5		
Pitted cobble				
Abrader				
Metate fragment				
Total Nonchert Artifacts	1	557.5		
MISC. MATERIAL				
Fire-cracked rock				
Unmodified rock				
Total Misc. Material				
PAGE TOTAL	1	557.5	1	5.9
Utilized Flakes				

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	General Surface Collection Grid 10 Row 7 N	Unit 1 W(g)	General Surface Collection Grid 10 Row 7 N	Unit 2 W(g)	General Surface Collection Grid 10 Row 8 N	Unit 1 W(g)	General Surface Collection Grid 10 Row 8 N	Unit 2 W(g)	General Surface Collection Grid 10 Row 9 N	Unit 1 W(g)	General Surface Collection Grid 10 Row 9 N	Unit 2 W(g)	General Surface Collection Grid 10 Row 10 N	Unit 1 W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Retouched flake														
Total Chert Tools														
CHERT DEBITAGE														
Multidirectional core									1	115.1	1	23.0		
Bipolar core			1	175.0										
Exhausted core														
Primary flake					1	64.6			1	2.7				
Secondary flake	1	7.6			1	0.8			4	121.9			1	21.3
Tertiary flake	1	0.1					1	39.9	3	4.2				
Broken flake	1	1.7	2	4.0	2	1.1	1	9.1	1	3.1	3	10.5	2	8.4
Shatter	5	93.7	3	15.6	3	56.4	1	2.6	1	0.4	2	62.7		
Total Chert Debitage	8	103.1	6	194.6	7	122.9	3	51.6	11	247.4	6	96.2	3	29.7
NONCHERT ARTIFACTS														
Abrader														
Hammerstone														
Pitted cobble														
Total Nonchert Artifacts														
MISC. MATERIAL														
Fire-cracked rock	1	2.1												
Unmodified rock											2	971.3		
Total Misc. Material	1	2.1									2	971.3		
PAGE TOTAL	9	105.2	6	194.6	7	122.9	3	51.6	11	247.4	8	1067.5	3	29.7
Utilized Flakes														

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	General Surface Collection Grid 10 Row 10 Unit 2 N	W(g)	General Surface Collection Grid 10 Row 11 Unit 1 N	W(g)	General Surface Collection Grid 10 Row 11 Unit 2 N	W(g)	General Surface Collection Grid 10 Row 12 Unit 1 N	W(g)	General Surface Collection Grid 10 Row 12 Unit 2 N	W(g)	General Surface Collection Grid 10 Row 13 Unit 1 N	W(g)	General Surface Collection Grid 10 Row 13 Unit 2 N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Retouched flake														
Total Chert Tools														
CHERT DEBITAGE														
Multidirectional core														
Bipolar core											1	128.9		
Exhausted core														
Primary flake														
Secondary flake			1	3.4			2	11.7					1	1.2
Tertiary flake											1	0.9		
Broken flake	1	6.9	2	2.3	2	11.8	2	2.0	2	8.2				
Shatter	1	19.6			1	78.3	3	25.7			1	6.8		
Total Chert Debitage	2	26.5	3	5.7	3	90.1	7	39.4	2	8.2	3	136.6	1	1.2
NONCHERT ARTIFACTS														
Abrader														
Hammerstone														
Pitted cobble														
Total Nonchert Artifacts														
MISC. MATERIAL														
Fire-cracked rock														
Unmodified rock														
Total Misc. Material														
PAGE TOTAL	2	26.5	3	5.7	3	90.1	7	39.4	2	8.2	3	136.6	1	1.2
Utilized Flakes	1													

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	General Surface Collection Grid 10		General Surface Collection Grid 10		General Surface Collection Grid 11		General Surface Collection Grid 11		General Surface Collection Grid 11		General Surface Collection Grid 11		General Surface Collection Grid 11	
	Row 14	Unit 1	Row 14	Unit 2	Row 3	Unit 1	Row 3	Unit 2	Row 4	Unit 1	Row 4	Unit 2	Row 5	Unit 1
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface					1	5.2								
Thin biface														
Retouched flake														
Total Chert Tools					1	5.2								
CHERT DEBITAGE														
Multidirectional core									1	193.5			1	243.1
Bipolar core														
Exhausted core														
Primary flake									1	8.9				
Secondary flake	2	4.5					1	16.4	2	11.6	2	4.6	3	12.0
Tertiary flake	2	2.3	1	0.4	5	31.6					1	0.7	4	4.5
Broken flake	5	14.3	1	2.8					2	28.1	2	3.5	4	8.5
Shatter	2	4.3	1	1.7					2	69.0	1	33.6	2	21.5
Total Chert Debitage	11	25.4	3	4.9	5	31.6	1	16.4	8	311.1	6	42.4	14	289.6
NONCHERT ARTIFACTS														
Abrader														
Hammerstone	1	534.4					1	354.9						
Pitted cobble														
Total Nonchert Artifacts	1	534.4					1	354.9						
MISC. MATERIAL														
Fire-cracked rock														
Unmodified rock														
Total Misc. Material														
PAGE TOTAL	12	559.8	3	4.9	6	36.8	2	371.3	8	311.1	6	42.4	14	289.6
Utilized Flakes	1				1				2				1	

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	General Surface Collection Grid 11		General Surface Collection Grid 11		General Surface Collection Grid 11		General Surface Collection Grid 11		General Surface Collection Grid 11		General Surface Collection Grid 11		General Surface Collection Grid 11	
	Row 5	Unit 2	Row 6	Unit 1	Row 6	Unit 2	Row 7	Unit 1	Row 7	Unit 2	Row 8	Unit 1	Row 8	Unit 2
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface			1	59.5									1	139.6
Thin biface			1	6.3										
Retouched flake			1	41.8										
Total Chert Tools			3	107.6									1	139.6
CHERT DEBITAGE														
Multidirectional core			1	78.0										
Bipolar core														
Exhausted core														
Primary flake							1	25.1			1	11.1		
Secondary flake			4	24.0	2	42.6							2	27.1
Tertiary flake	2	23.3	3	7.0			1	0.2			3	49.3		
Broken flake			3	20.5	1	0.6	4	18.8			4	46.0	2	2.2
Shatter	1	20.0			2	258.6			1	5.1	3	42.1		
Total Chert Debitage	3	43.3	11	129.5	5	301.8	6	44.1	1	5.1	11	148.5	4	29.3
NONCHERT ARTIFACTS														
Abrader														
Hammerstone														
Pitted cobble											1	758.5		
Total Nonchert Artifacts											1	758.5		
MISC. MATERIAL														
Fire-cracked rock			1	155.8										
Unmodified rock														
Total Misc. Material			1	155.8										
PAGE TOTAL	3	43.3	15	392.9	5	301.8	6	44.1	1	5.1	12	907.0	5	168.9
Utilized Flakes	1		6		1		1				2		1	

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	General Surface Collection Grid 11		General Surface Collection Grid 11		General Surface Collection Grid 11		General Surface Collection Grid 11		General Surface Collection Grid 11		General Surface Collection Grid 11		General Surface Collection Grid 11	
	Row 9	Unit 1	Row 9	Unit 2	Row 10	Unit 1	Row 10	Unit 2	Row 11	Unit 1	Row 11	Unit 2	Row 12	Unit 2
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface							1	84.4						
Thin biface														
Retouched flake														
Total Chert Tools							1	84.4						
CHERT DEBITAGE														
Multidirectional core					1	126.0								
Bipolar core														
Exhausted core														
Primary flake														
Secondary flake	1	3.9			1	30.7								
Tertiary flake					1	6.3			1	1.1				
Broken flake	2	15.1	1	24.6									1	0.3
Shatter			1	10.5	1	22.7			1	16.5	1	0.7		
Total Chert Debitage	3	19.0	2	35.1	4	185.7			2	17.6	1	0.7	1	0.3
NONCHERT ARTIFACTS														
Abrader														
Hammerstone														
Pitted cobble														
Total Nonchert Artifacts														
MISC. MATERIAL														
Fire-cracked rock														
Unmodified rock														
Total Misc. Material														
PAGE TOTAL	3	19.0	2	35.1	4	185.7	1	84.4	2	17.6	1	0.7	1	0.3
Utilized Flakes	1		1											

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	General Surface Collection Grid 11 Row 13		General Surface Collection Grid 11 Row 14		General Surface Collection Grid 11 Row 14		General Surface Collection Grid 12 Row 10	
	Unit 1		Unit 1		Unit 2		Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS								
Rough biface								
Thick biface			1	163.7				
Thin biface								
Retouched flake								
Total Chert Tools			1	163.7				
CHERT DEBITAGE								
Multidirectional core			1	201.4				
Bipolar core								
Exhausted core								
Primary flake			1	43.5				
Secondary flake	1	1.6					1	15.0
Tertiary flake								
Broken flake			2	2.7			1	1.1
Shatter	1	10.2			1	99.0		
Total Chert Debitage	2	11.8	4	247.6	1	99.0	2	16.1
NONCHERT ARTIFACTS								
Abrader								
Hammerstone								
Pitted cobble								
Total Nonchert Artifacts								
MISC. MATERIAL								
Fire-cracked rock								
Unmodified rock								
Total Misc. Material								
PAGE TOTAL	2	11.8	5	411.3	1	99.0	2	16.1
Utilized Flakes			1					

	General Surface Collection Grid 12 Row 10		General Surface Collection Grid 12 Row 11		General Surface Collection Grid 12 Row 11	
	Unit 2		Unit 1		Unit 2	
	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS						
Rough biface			1	81.1		
Thick biface			1	60.5		
Thin biface						
Retouched flake			1	85.0		
Total Chert Tools			3	226.6		
CHERT DEBITAGE						
Multidirectional core						
Bipolar core						
Exhausted core						
Primary flake						
Secondary flake	1	3.8	2	25.0	2	105.4
Tertiary flake	1	1.7	3	5.0	1	7.4
Broken flake	2	6.1	1	0.5	1	1.3
Shatter	1	49.4	3	48.5		
Total Chert Debitage	5	61.0	9	79.0	4	114.1
NONCHERT ARTIFACTS						
Abrader						
Hammerstone						
Pitted cobble						
Total Nonchert Artifacts						
MISC. MATERIAL						
Fire-cracked rock						
Unmodified rock						
Total Misc. Material						
PAGE TOTAL	5	61.0	12	305.6	4	114.1
Utilized Flakes					1	

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	General Surface Collection Grid 12 Row 12 Unit 1		General Surface Collection Grid 12 Row 12 Unit 2		General Surface Collection Grid 12 Row 13 Unit 1		General Surface Collection Grid 12 Row 13 Unit 2		General Surface Collection Grid 12 Row 14 Unit 1		General Surface Collection Grid 12 Row 14 Unit 2		Machine Trench 31	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface							1	72.4	1	124.3				
Thin biface														
Retouched flake	1	48.3												
Total Chert Tools	1	48.3					1	72.4	1	124.3				
CHERT DEBITAGE														
Multidirectional core														
Bipolar core					1	76.0								
Exhausted core									1	45.0				
Primary flake	1	3.3			3	6.9	1	4.9	1	2.5	1	92.8	1	10.3
Secondary flake	5	9.3	1	21.5	9	122.9	4	20.6	6	59.1	1	70.1		
Tertiary flake	1	0.2	1	0.2	5	9.0	9	12.7	4	6.6	1	0.5		
Broken flake	5	7.4	5	14.9	4	18.1	2	3.8	3	16.8	5	18.4	2	7.9
Shatter	8	654.8	4	264.5	7	133.2	1	4.0	2	11.5			1	14.1
Total Chert Debitage	20	675.0	11	301.1	29	366.1	17	46.0	17	141.5	8	181.8	4	32.3
NONCHERT ARTIFACTS														
Abrader									1	19.8				
Hammerstone														
Pitted cobble														
Total Nonchert Artifacts									1	19.8				
MISC. MATERIAL														
Fire-cracked rock	1	15.6					1	33.0	2	359.3				
Unmodified rock	1	479.4												
Total Misc. Material	2	495.0					1	33.0	2	359.3				
PAGE TOTAL	23	1218.3	11	301.1	29	366.1	19	151.4	21	644.9	8	181.8	4	32.3
Utilized Flakes	3		1		10		2		3		2		1	

Machine Trench 32

	N	W(g)
CHERT TOOLS		
Rough biface		
Thick biface		
Thin biface		
Retouched flake		
Total Chert Tools		
CHERT DEBITAGE		
Multidirectional core		
Bipolar core		
Exhausted core		
Primary flake		
Secondary flake		
Tertiary flake		
Broken flake		
Shatter	3	201.8
Total Chert Debitage	3	201.8
NONCHERT ARTIFACTS		
Abrader		
Hammerstone		
Pitted cobble		
Total Nonchert Artifacts		
MISC. MATERIAL		
Fire-cracked rock		
Unmodified rock		
Total Misc. Material		
PAGE TOTAL	3	201.8
Utilized Flakes		

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	General Surface Collection Grid 4 Row 20 Unit 1		General Surface Collection Grid 4 Row 20 Unit 2		General Surface Collection Grid 4 Row 21 Unit 1		General Surface Collection Grid 4 Row 21 Unit 2		General Surface Collection Grid 4 Row 22 Unit 1		General Surface Collection Grid 4 Row 22 Unit 2		General Surface Collection Grid 4 Row 23 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface						0.0							1	316.7
Thin biface														
Endscraper														
Sidescraper														
Retouched flake														
Perforating tool														
Hammerstone														
Axe														
Chopper														
Wedge														
Total Chert Tools													1	316.7
CHERT DEBITAGE														
Multidirectional core					1	37.9								
Bipolar core														
Primary flake													1	68.6
Secondary flake	2	64.9			1	3.3	1	1.3	5	42.9			2	4.1
Tertiary flake					2	3.3	1	0.3	1	0.3	2	1.1	3	13.2
Bifacial thin. flake														
Broken flake	1	2.7	2	4.0	4	2.3	2	1.0	2	4.9	2	3.5	4	3.4
Blade														
Shatter			1	5.7	3	12.4	2	41.0	2	25.1	4	25.0	2	219.1
Total Chert Debitage	3	67.6	3	9.7	11	59.2	6	43.6	10	73.2	8	29.6	12	308.4
NONCHERT ARTIFACTS														
Hammerstone														
Pitted cobble														
Metate														
Total Nonchert Artifacts														
MISC. MATERIAL														
Hematite/Ochre														
Fire-cracked rock														
Unmodified rock														
Total Misc. Material														
PAGE TOTAL	3	67.6	3	9.7	11	59.2	6	43.6	10	73.2	8	29.6	13	625.1
Utilized Flakes	1				1								1	

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	General Surface Collection Grid 4 Row 23 Unit 2 N	W(g)	General Surface Collection Grid 4 Row 24 Unit 1 N	W(g)	General Surface Collection Grid 4 Row 24 Unit 2 N	W(g)	General Surface Collection Grid 9 Row 13 Unit 1 N	W(g)	General Surface Collection Grid 9 Row 14 Unit 1 N	W(g)	General Surface Collection Grid 9 Row 14 Unit 2 N	W(g)	General Surface Collection Grid 9 Row 15 Unit 1 N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Endscraper														
Sidescraper														
Retouched flake														
Perforating tool														
Hammerstone														
Axe														
Chopper														
Wedge														
Total Chert Tools														
CHERT DEBITAGE														
Multidirectional core														
Bipolar core														
Primary flake														
Secondary flake			4	20.3	1	5.0	1	10.8						
Tertiary flake	1	0.1							1	1.1				
Bifacial thin. flake														
Broken flake	3	7.8	4	2.0					1	18.5	1	1.5	1	0.8
Blade														
Shatter	2	28.1	2	29.4	3	101.8							3	6.2
Total Chert Debitage	6	36.0	10	51.7	4	106.8	1	10.8	2	19.6	1	1.5	4	7.0
NONCHERT ARTIFACTS														
Hammerstone														
Pitted cobble														
Metate														
Total Nonchert Artifacts														
MISC. MATERIAL														
Hematite/Ochre														
Fire-cracked rock														
Unmodified rock														
Total Misc. Material														
PAGE TOTAL	6	36.0	10	51.7	4	106.8	1	10.8	2	19.6	1	1.5	4	7.0
Utilized Flakes			1											

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	General Surface Collection Grid 9 Row 15 Unit 2 N	W(g)	General Surface Collection Grid 9 Row 16 Unit 1 N	W(g)	General Surface Collection Grid 9 Row 16 Unit 2 N	W(g)	General Surface Collection Grid 9 Row 17 Unit 1 N	W(g)	General Surface Collection Grid 9 Row 17 Unit 2 N	W(g)	General Surface Collection Grid 9 Row 18 Unit 1 N	W(g)	General Surface Collection Grid 9 Row 18 Unit 2 N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface									1	65.6				
Thin biface														
Endscraper														
Sidescraper											1	4.3		
Retouched flake									1	16.2	1	6.7	1	9.0
Perforating tool														
Hammerstone														
Axe														
Chopper														
Wedge														
Total Chert Tools									2	81.8	2	11.0	1	9.0
CHERT DEBITAGE														
Multidirectional core							1	91.4						
Bipolar core														
Primary flake							1	43.1	1	7.6	1	0.4		
Secondary flake			1	16.5	1	8.7	4	39.9			3	13.1	2	15.6
Tertiary flake			2	6.0	1	4.8	4	16.6	1	1.7	8	7.7	6	3.5
Bifacial thin. flake														
Broken flake	1	7.5	2	3.1	2	0.9	6	6.3	6	7.9	11	6.0	3	5.7
Blade									1	3.4	1	0.9		
Shatter	3	218.9	6	64.6	2	47.5	1	4.8	3	105.0	4	5.7	4	18.5
Total Chert Debitage	4	226.4	11	90.2	6	61.9	17	202.1	12	125.6	28	33.8	15	43.3
NONCHERT ARTIFACTS														
Hammerstone	1	751.5												
Pitted cobble														
Metate														
Total Nonchert Artifacts	1	751.5												
MISC. MATERIAL														
Hematite/Ochre														
Fire-cracked rock														
Unmodified rock														
Total Misc. Material														
PAGE TOTAL	5	977.9	11	90.2	6	61.9	17	202.1	14	207.4	30	44.8	16	52.3
Utilized Flakes					1		2		4		4		1	

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	General Surface Collection Grid 9 Row 19 Unit 1		General Surface Collection Grid 9 Row 19 Unit 2		General Surface Collection Grid 9 Row 20 Unit 1		General Surface Collection Grid 9 Row 20 Unit 2		General Surface Collection Grid 9 Row 21 Unit 1		General Surface Collection Grid 9 Row 21 Unit 2		General Surface Collection Grid 9 Row 22 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface	1	80.6												
Thick biface			1	100.4	1	49.5								
Thin biface														
Endscraper														
Sidescraper														
Retouched flake					1	28.6								
Perforating tool														
Hammerstone														
Axe														
Chopper														
Wedge														
Total Chert Tools	1	80.6	1	100.4	2	78.1								
CHERT DEBITAGE														
Multidirectional core			1	130.1	1	68.8	1	122.5					1	132.8
Bipolar core														
Primary flake	1	3.0	1	0.2	2	34.2	1	3.7	5	91.5	3	26.4		
Secondary flake	5	11.6	1	6.6	5	93.9	5	66.6	13	144.0	6	103.3	8	203.5
Tertiary flake	2	7.3	3	20.6	8	29.1	3	2.1	10	21.8	7	14.2	3	14.9
Bifacial thin. flake													1	21.2
Broken flake	4	9.6	6	4.4	11	14.1	3	6.9	13	67.8	11	12.6	6	20.8
Blade														
Shatter	3	91.5	1	3.0	5	33.7	2	39.8			7	308.0	6	66.9
Total Chert Debitage	15	123.0	13	164.9	32	273.8	15	241.6	41	325.1	34	464.5	25	460.1
NONCHERT ARTIFACTS														
Hammerstone									2	793.6				
Pitted cobble														
Metate														
Total Nonchert Artifacts									2	793.6				
MISC. MATERIAL														
Hematite/Ochre														
Fire-cracked rock									1	5.0	1	52.8		
Unmodified rock									2	456.0	1	100.6	2	673.4
Total Misc. Material									3	461.0	2	153.4	2	673.4
PAGE TOTAL	16	203.6	14	265.3	34	351.9	15	241.6	46	1579.7	4	306.8	4	1346.8
Utilized Flakes	4		3		4		1		13		3		3	

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	General Surface Collection Grid 9 Row 22 Unit 2		General Surface Collection Grid 9 Row 23 Unit 1		General Surface Collection Grid 9 Row 23 Unit 2		General Surface Collection Grid 9 Row 24 Unit 1		General Surface Collection Grid 9 Row 24 Unit 2		General Surface Collection Grid 9 Row 25 Unit 1		General Surface Collection Grid 9 Row 25 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface			1	89.5										
Thick biface											2	215.9		
Thin biface														
Endscraper														
Sidescraper														
Retouched flake														
Perforating tool														
Hammerstone									1	157.5				
Axe														
Chopper														
Wedge														
Total Chert Tools			1	89.5					1	157.5	2	215.9		
CHERT DEBITAGE														
Multidirectional core	1	173.5					3	224.2	1	544.8				
Bipolar core														
Primary flake							4	37.5					3	49.0
Secondary flake			5	29.4	1	6.2	10	94.3	5	215.8	8	117.7	4	31.2
Tertiary flake	6	14.6	4	4.6	4	4.9	12	55.2	8	85.4	9	12.6	2	5.1
Bifacial thin. flake														
Broken flake	4	58.7	8	77.5	5	21.2	14	43.9	12	43.6	14	59.7	8	11.9
Blade														
Shatter			5	60.8	3	18.9	2	7.2	8	191.5	11	328.8	3	115.4
Total Chert Debitage	11	246.8	22	172.3	13	51.2	45	462.3	34	1081.1	42	518.8	20	212.6
NONCHERT ARTIFACTS														
Hammerstone							1	524.4			1	723.0	1	538.1
Pitted cobble					1	498.2								
Metate														
Total Nonchert Artifacts					1	498.2	1	524.4			1	723.0	1	538.1
MISC. MATERIAL														
Hematite/Ochre														
Fire-cracked rock														
Unmodified rock			1	196.2										
Total Misc. Material			1	196.2										
PAGE TOTAL	11	246.8	24	458.0	14	549.4	46	986.7	35	1238.6	45	1457.7	21	750.7
Utilized Flakes	1		5				6		5		4		3	

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	General Surface Collection Grid 9 Row 26 Unit 1		General Surface Collection Grid 9 Row 26 Unit 2		General Surface Collection Grid 9 Row 27 Unit 1		General Surface Collection Grid 9 Row 27 Unit 2		General Surface Collection Grid 10 Row 20 Unit 1		General Surface Collection Grid 10 Row 20 Unit 2		General Surface Collection Grid 10 Row 21 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface							1	76.5						
Thin biface														
Endscraper									1	1.5				
Sidescraper														
Retouched flake			2	60.7										
Perforating tool														
Hammerstone														
Axe					1	291.1								
Chopper														
Wedge														
Total Chert Tools			2	60.7	1	291.1	1	76.5	1	1.5				
CHERT DEBITAGE														
Multidirectional core			2	201.2	1	179.8								
Bipolar core														
Primary flake							2	5.9			1	25.5		
Secondary flake	7	535.8	4	92.3	8	58.2			7	42.4	2	34.8	5	112.5
Tertiary flake	5	43.2			6	15.8			7	18.0	4	5.4	2	1.1
Bifacial thin. flake														
Broken flake	7	20.9	3	21.0	2	8.4	2	8.3	6	36.3	2	2.7	8	8.2
Blade														
Shatter	2	6.6			6	248.7	4	199.3	6	109.8	2	76.2	2	23.1
Total Chert Debitage	21	606.5	9	314.5	23	510.9	8	213.5	26	206.5	11	144.6	17	144.9
NONCHERT ARTIFACTS														
Hammerstone														
Pitted cobble														
Metate														
Total Nonchert Artifacts														
MISC. MATERIAL														
Hematite/Ochre														
Fire-cracked rock														
Unmodified rock														
Total Misc. Material														
PAGE TOTAL	21	606.5	11	375.2	24	802.0	9	290.0	27	208.0	11	144.6	17	144.9
Utilized Flakes	6		5		9		1		3				2	

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	General Surface Collection Grid 10 Row 21 N	Unit 2 W(g)	General Surface Collection Grid 10 Row 22 N	Unit 1 W(g)	General Surface Collection Grid 10 Row 22 N	Unit 2 W(g)	General Surface Collection Grid 10 Row 23 N	Unit 1 W(g)	General Surface Collection Grid 10 Row 23 N	Unit 2 W(g)	General Surface Collection Grid 10 Row 24 N	Unit 1 W(g)	General Surface Collection Grid 10 Row 24 N	Unit 2 W(g)
CHERT TOOLS														
Rough biface														
Thick biface			1	40.6			1	216.7			1	13.9	1	77.4
Thin biface														
Endscraper														
Sidescraper														
Retouched flake							1	26.1					1	32.3
Perforating tool											1	27.1		
Hammerstone							1	193.5						
Axe														
Chopper													1	110.0
Wedge														
Total Chert Tools			1	40.6			3	436.3			2	41.0	3	219.7
CHERT DEBITAGE														
Multidirectional core			1	127.9					1	259.3	1	262.7		
Bipolar core											1	64.4		
Primary flake	1	16.2					2	30.3	1	3.7	1	1.0	2	3.5
Secondary flake	1	29.8	4	69.7	5	70.3	4	84.0			9	213.0	7	95.8
Tertiary flake	2	8.5	1	1.0	2	9.0	6	13.4	1	0.8	9	34.8	1	2.4
Bifacial thin. flake											1	2.5		
Broken flake	1	0.5	8	11.9	1	3.5	4	11.5	6	46.8	10	19.4	6	17.9
Blade														
Shatter	1	1.4	7	175.7	1	82.1	4	185.8	5	163.9	9	473.6	10	574.9
Total Chert Debitage	6	56.4	21	386.2	9	164.9	20	325.0	14	474.5	41	1071.4	26	694.5
NONCHERT ARTIFACTS														
Hammerstone			1	751.8					1	736.8			1	395.4
Pitted cobble														
Metate														
Total Nonchert Artifacts			1	751.8					1	736.8			1	395.4
MISC. MATERIAL														
Hematite/Ochre														
Fire-cracked rock									1	64.9	2	111.7		
Unmodified rock	1	63.2			1	401.3					2	182.7	1	511.7
Total Misc. Material	1	63.2			1	401.3			1	64.9	4	294.4	1	511.7
PAGE TOTAL	7	119.6	23	1178.6	10	566.2	23	761.3	16	1276.2	47	1406.8	31	1821.3
Utilized Flakes	1		3		3		3		1		13		9	

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	General Surface Collection Grid 10 Row 25	Unit 1	General Surface Collection Grid 10 Row 25	Unit 2	General Surface Collection Grid 10 Row 26	Unit 1	General Surface Collection Grid 10 Row 26	Unit 2	General Surface Collection Grid 10 Row 27	Unit 1	General Surface Collection Grid 10 Row 27	Unit 2	General Surface Collection Grid 10 Row 28	Unit 1
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface											1	29.6		
Thick biface					3	296.4							1	69.5
Thin biface	1	15.6											1	26.6
Endscraper														
Sidescraper														
Retouched flake					3	34.9	3	392.9					3	235.6
Perforating tool														
Hammerstone													1	664.9
Axe														
Chopper														
Wedge					1	242.1							1	212.5
Total Chert Tools	1	15.6			7	573.4	3	392.9			1	29.6	7	1209.1
CHERT DEBITAGE														
Multidirectional core	1	43.9	2	268.9	2	340.6								
Bipolar core											1	69.2		
Primary flake	8	75.5	1	96.3	1	96.3			4	57.3	4	17.7	5	63.9
Secondary flake	20	189.4	6	45.0	9	132.4	10	75.4	4	13.2	10	55.2	13	92.7
Tertiary flake	8	35.5	10	17.5	12	26.0	5	13.7	13	61.4	11	7.0	11	24.9
Bifacial thin. flake	3	7.4									4	4.6		
Broken flake	23	37.5	11	43.6	21	53.1	5	14.3	17	33.9	15	17.5	22	30.2
Blade														
Shatter	25	535.5	11	43.6	16	660.9	7	212.3	5	85.0	12	360.7	13	264.8
Total Chert Debitage	88	924.7	41	514.9	61	1309.3	27	315.7	43	250.8	57	531.9	64	476.5
NONCHERT ARTIFACTS														
Hammerstone					2	733.2								
Pitted cobble														
Metate											1	236.5		
Total Nonchert Artifacts					2	733.2					1	236.5		
MISC. MATERIAL														
Hematite/Ochre							1	18.0						
Fire-cracked rock	2	192.9	1	1.8	4	87.2							1	48.4
Unmodified rock			2	374.9										
Total Misc. Material	2	192.9	3	376.7	4	87.2	1	18.0					1	48.4
PAGE TOTAL	91	1133.2	44	891.6	74	2703.1	31	726.6	43	250.8	59	798.0	72	1734.0
Utilized Flakes	16		5		6		3		9		10		10	

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	General Surface Collection Grid 10 Row 28	Unit 2	General Surface Collection Grid 10 Row 29	Unit 1	General Surface Collection Grid 10 Row 29	Unit 2	General Surface Collection Grid 10 Row 30	Unit 1	General Surface Collection Grid 10 Row 30	Unit 2
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS										
Rough biface	1	86.3					1	82.9		
Thick biface			1	65.4						
Thin biface										
Endscraper										
Sidescraper										
Retouched flake	1	72.0								
Perforating tool										
Hammerstone										
Axe										
Chopper										
Wedge										
Total Chert Tools	2	158.3	1	65.4			1	82.9		
CHERT DEBITAGE										
Multidirectional core			1	134.9						
Bipolar core										
Primary flake	7	156.2	1	0.9			1	10.7		
Secondary flake	7	46.9	2	14.9	2	12.5	2	27.8		
Tertiary flake	11	24.9	5	7.7	1	2.5	2	50.4		
Bifacial thin. flake	3	3.1								
Broken flake	11	14.7	3	6.1			5	18.2	3	8.6
Blade										
Shatter	11	373.2	3	115.0	2	62.0	6	681.4	3	63.5
Total Chert Debitage	50	619.0	15	279.5	5	77.0	16	788.5	6	72.1
NONCHERT ARTIFACTS										
Hammerstone	1	444.7								
Pitted cobble										
Metate										
Total Nonchert Artifacts	1	444.7								
MISC. MATERIAL										
Hematite/Ochre										
Fire-cracked rock							1	116.1		
Unmodified rock					1	545.0				
Total Misc. Material					1	545.0	1	116.1		
PAGE TOTAL	53	1222.0	16	344.9	6	622.0	18	987.5	6	72.1
Utilized Flakes	11		2		1		5			

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	General Surface Collection Grid 10 Row 39 Unit 1 N	W(g)	General Surface Collection Grid 10 Row 39 Unit 2 N	W(g)	General Surface Collection Grid 10 Row 40 Unit 1 N	W(g)	General Surface Collection Grid 10 Row 40 Unit 2 N	W(g)	General Surface Collection Grid 10 Row 41 Unit 1 N	W(g)	General Surface Collection Grid 10 Row 41 Unit 2 N	W(g)	General Surface Collection Grid 10 Row 42 Unit 1 N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface													1	17.3
Thin biface														
Projectile point/Knife													1	13.6
End scraper														
Retouched flake														
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools													2	30.9
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core														
Bipolar core														
Tested core														
Core fragment														
Primary flake													1	10.6
Secondary flake	2	11.1					1	18.5						
Tertiary flake	2	2.8	2	3.3										
Bifacial thin. flake														
Broken flake	2	9.8	1	2.9	3	10.4	3	32.3	2	3.5	2	5.7	4	11.2
Bipolar flake														
Shatter	9	294.0	11	614.5	7	280.3	14	307.3	13	451.5	20	562.4	24	499.6
Blades														
Total Chert Debitage	15	317.7	14	620.7	10	290.7	18	358.1	15	455.0	22	568.1	29	521.4
NONCHERT ARTIFACTS														
Hammerstone					1	392.1								
Abrader														
Axe														
Pitted cobble														
Nutting stone														
Tested cobble														
Cobble														
Total Nonchert Artifacts					1	392.1								
MISC. MATERIAL														
Limestone														
Fire-cracked rock														
Hematite														
Unmodified rock														
Slag														
Cinder														
Concrete														
Historic material														
Faunal remains														
Total Misc. Material														
PAGE TOTAL	15	317.7	14	620.7	11	682.8	18	358.1	15	455.0	22	568.1	31	552.3
Utilized Flakes	1						1							

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	General Surface Collection Grid 10 Row 42 Unit 2 N	W(g)	General Surface Collection Grid 10 Row 43 Unit 1 N	W(g)	General Surface Collection Grid 10 Row 43 Unit 2 N	W(g)	General Surface Collection Grid 10 Row 44 Unit 1 N	W(g)	General Surface Collection Grid 10 Row 44 Unit 2 N	W(g)	General Surface Collection Grid 10 Row 45 Unit 1 N	W(g)	General Surface Collection Grid 10 Row 45 Unit 2 N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface					1	19.6								
Thin biface													1	4.6
Projectile point/Knife														
End scraper														
Retouched flake														
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools					1	19.6							1	4.6
CHERT DEBITAGE														
Plano-convex core											1	81.0		
Multidirectional core														
Bipolar core														
Tested core														
Core fragment														
Primary flake														
Secondary flake	1	5.1	1	2.3										
Tertiary flake			1	0.9					1	6.7	3	12.1	2	12.6
Bifacial thin. flake							1	0.2	1	0.5			4	1.5
Broken flake	3	28.9	4	56.6	5	5.0	5	11.8	6	10.2	18	32.8	4	28.3
Bipolar flake														
Shatter	26	1320.1	29	425.7	22	395.6	20	145.2	22	476.5	17	101.5	1	27.6
Blades														
Total Chert Debitage	30	1354.1	35	485.5	27	400.6	26	157.2	30	493.9	39	227.4	11	70.0
NONCHERT ARTIFACTS														
Hammerstone														
Abrader														
Axe														
Pitted cobble														
Nutting stone														
Tested cobble														
Cobble														
Total Nonchert Artifacts														
MISC. MATERIAL														
Limestone														
Fire-cracked rock					1	127.1								
Hematite														
Unmodified rock							1	36.2			1	156.3		
Slag														
Cinder														
Concrete														
Historic material														
Faunal remains														
Total Misc. Material					1	127.1	1	36.2			1	156.3		
PAGE TOTAL	30	1354.1	35	485.5	29	547.3	27	193.4	30	493.9	40	383.7	12	74.6
Utilized Flakes													1	

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	General Surface Collection Grid 10 Row 46 N	Unit 1 W(g)	General Surface Collection Grid 10 Row 46 N	Unit 2 W(g)	General Surface Collection Grid 10 Row 47 N	Unit 1 W(g)	General Surface Collection Grid 10 Row 47 N	Unit 2 W(g)	General Surface Collection Grid 10 Row 48 N	Unit 1 W(g)	General Surface Collection Grid 10 Row 48 N	Unit 2 W(g)	General Surface Collection Grid 10 Row 49 N	Unit 1 W(g)
CHERT TOOLS														
Rough biface											1	52.9		
Thick biface									1	18.7				
Thin biface														
Projectile point/Knife														
End scraper														
Retouched flake							1	3.6						
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools							1	3.6	1	18.7	1	52.9		
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core														
Bipolar core			1	118.8										
Tested core														
Core fragment														
Primary flake														
Secondary flake	1	12.4												
Tertiary flake	2	20.0	2	30.5	2	5.5			6	24.2			4	106.6
Bifacial thin. flake														
Broken flake	12	37.6	7	30.0	7	15.1	2	4.3	5	8.5	3	2.7	10	13.4
Bipolar flake														
Shatter	24	447.9	10	385.0	11	164.1	4	269.2	9	603.9	7	289.0	14	232.5
Blades													1	4.0
Total Chert Debitage	39	517.9	20	564.3	20	184.7	6	273.5	20	636.6	10	291.7	29	356.5
NONCHERT ARTIFACTS														
Hammerstone														
Abrader														
Axe														
Pitted cobble														
Nutting stone														
Tested cobble														
Cobble														
Total Nonchert Artifacts														
MISC. MATERIAL														
Limestone														
Fire-cracked rock							1	128.7						
Hematite														
Unmodified rock			1	120.1	1	89.5								
Slag														
Cinder														
Concrete														
Historic material														
Faunal remains														
Total Misc. Material			1	120.1	1	89.5	1	128.7						
PAGE TOTAL	39	517.9	21	684.4	21	274.2	8	405.8	21	655.3	11	344.6	29	356.5
Utilized Flakes	2													

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	General Surface Collection Grid 10 Row 49 Unit 2		General Surface Collection Grid 10 Row 50 Unit 1		General Surface Collection Grid 10 Row 50 Unit 2		General Surface Collection Grid 10 Row 51 Unit 1		General Surface Collection Grid 10 Row 51 Unit 2		General Surface Collection Grid 10 Row 52 Unit 1		General Surface Collection Grid 10 Row 52 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Projectile point/Knife														
End scraper											1	11.7		
Retouched flake														
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools											1	11.7		
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core														
Bipolar core							1	16.9						
Tested core														
Core fragment														
Primary flake														
Secondary flake	1	35.4												
Tertiary flake	4	21.3	2	18.6	2	18.6	5	21.0	1	0.6	2	10.0	2	3.1
Bifacial thin. flake											1	0.2		
Broken flake	8	35.5	9	11.6	1	1.4	9	5.1	2	0.7	3	3.9		
Bipolar flake														
Shatter			1	28.1	2	6.7	2	7.0	1	9.4	6	139.3	1	0.4
Blades														
Total Chert Debitage	13	92.2	12	58.3	5	26.7	17	50.0	4	10.7	12	153.4	3	3.5
NONCHERT ARTIFACTS														
Hammerstone														
Abrader														
Axe														
Pitted cobble														
Nutting stone														
Tested cobble														
Cobble														
Total Nonchert Artifacts														
MISC. MATERIAL														
Limestone														
Fire-cracked rock			1	46.9										
Hematite														
Unmodified rock														
Slag														
Cinder														
Concrete														
Historic material														
Faunal remains														
Total Misc. Material			1	46.9										
PAGE TOTAL	13	92.2	13	105.2	5	26.7	17	50.0	4	10.7	13	165.1	3	3.5
Utilized Flakes	1		1		2									

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	General Surface Collection Grid 11 Row 35 Unit 1		General Surface Collection Grid 11 Row 35 Unit 2		General Surface Collection Grid 11 Row 36 Unit 1		General Surface Collection Grid 11 Row 36 Unit 2		General Surface Collection Grid 11 Row 37 Unit 1		General Surface Collection Grid 11 Row 37 Unit 2		General Surface Collection Grid 11 Row 38 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface	1	81.9			1	103.8			1	56.7				
Thick biface														
Thin biface	1	25.6			1	4.7								
Projectile point/Knife														
End scraper														
Retouched flake											1	1.0	2	22.5
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools	2	107.5			2	108.5			1	56.7	1	1.0	2	22.5
CHERT DEBITAGE														
Plano-convex core			1	61.1										
Multidirectional core			1	132.1					1	81.2			1	295.0
Bipolar core									1	69.6				
Tested core														
Core fragment														
Primary flake														
Secondary flake									1	5.0				
Tertiary flake	4	60.1	2	14.9	3	94.2	3	16.7	8	104.9	9	126.8	8	58.5
Bifacial thin. flake									3	0.9				
Broken flake	2	3.9	5	38.3	3	12.9	9	32.0	16	55.9	16	75.7	20	57.9
Bipolar flake														
Shatter	5	174.1	6	453.3	7	595.8	4	706.4	28	335.3	21	1177.7	23	298.8
Blades														
Total Chert Debitage	11	238.1	15	699.7	13	702.9	16	755.1	58	652.8	46	1380.2	52	710.2
NONCHERT ARTIFACTS														
Hammerstone			1	264.8							2	513.5		
Abrader														
Axe														
Pitted cobble														
Nutting stone														
Tested cobble														
Cobble														
Total Nonchert Artifacts			1	264.8							2	513.5		
MISC. MATERIAL														
Limestone														
Fire-cracked rock									1	188.3				
Hematite														
Unmodified rock														
Slag														
Cinder														
Concrete														
Historic material														
Faunal remains														
Total Misc. Material									1	188.3				
PAGE TOTAL	13	345.6	16	964.5	15	811.4	16	755.1	60	897.8	49	1894.7	54	732.7
Utilized Flakes											1			

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	General Surface Collection Grid 11 Row 38	Unit 2	General Surface Collection Grid 11 Row 39	Unit 1	General Surface Collection Grid 11 Row 39	Unit 2	General Surface Collection Grid 11 Row 40	Unit 1	General Surface Collection Grid 11 Row 40	Unit 2	General Surface Collection Grid 11 Row 41	Unit 1	General Surface Collection Grid 11 Row 41	Unit 2
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Projectile point/Knife														
End scraper														
Retouched flake											1	16.9		
Perforating tool											1	20.9		
Uniface fragment														
Wedge														
Total Chert Tools											2	37.8		
CHERT DEBITAGE														
Plano-convex core											1	46.2	1	762.5
Multidirectional core			1	40.0	1	89.9					1	30.9	1	145.0
Bipolar core														
Tested core			1	134.0										
Core fragment														
Primary flake	1	3.2	2	13.3	1	6.0					1	0.3		
Secondary flake			2	28.9			1	22.0	2	27.5	3	62.1		
Tertiary flake	6	68.4	5	24.6	3	31.6	4	97.7	2	35.0	8	39.0	1	1.9
Bifacial thin. flake					3	2.5								
Broken flake	12	41.3	11	43.7	5	32.3	9	14.7	10	66.6	20	151.1	15	61.1
Bipolar flake														
Shatter	16	373.4	10	183.1	10	110.2	6	216.6	9	215.7	57	518.8	31	2040.4
Blades	1	3.9					1	3.4			1	4.9		
Total Chert Debitage	36	490.2	32	467.6	23	272.5	21	354.4	23	344.8	92	853.3	49	3010.9
NONCHERT ARTIFACTS														
Hammerstone	1	225.0			1	373.1								
Abrader														
Axe														
Pitted cobble														
Nutting stone														
Tested cobble														
Cobble														
Total Nonchert Artifacts	1	225.0			1	373.1								
MISC. MATERIAL														
Limestone														
Fire-cracked rock			2	214.2					1	57.0	2	195.1	1	234.0
Hematite														
Unmodified rock											4	155.0	1	69.9
Slag														
Cinder														
Concrete														
Historic material														
Faunal remains														
Total Misc. Material			2	214.2					1	57.0	6	350.1	2	303.9
PAGE TOTAL	37	715.2	34	681.8	24	645.6	21	354.4	24	401.8	100	1241.2	51	3314.8
Utilized Flakes			1		1				1		1		1	

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	General Surface Collection Grid 11 Row 42 Unit 1		General Surface Collection Grid 11 Row 42 Unit 2		General Surface Collection Grid 11 Row 43 Unit 1		General Surface Collection Grid 11 Row 43 Unit 2		General Surface Collection Grid 11 Row 44 Unit 1		General Surface Collection Grid 11 Row 44 Unit 2		General Surface Collection Grid 11 Row 45 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface	1	22.6												
Projectile point/Knife							1	15.0						
End scraper														
Retouched flake	1	2.8	1	13.5										
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools	2	25.4	1	13.5			1	15.0						
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core	2	337.3			1	32.8	1	121.7						
Bipolar core									1	25.1				
Tested core														
Core fragment														
Primary flake			1	21.6										
Secondary flake	3	23.0	1	6.4	4	58.1	3	72.2						
Tertiary flake	9	40.7	3	35.7	3	13.5	2	5.4	6	59.4	2	12.9		
Bifacial thin. flake			1	0.1										
Broken flake	21	76.3	8	13.0	10	160.9	3	52.7	11	40.8	1	0.4	3	5.7
Bipolar flake														
Shatter	58	741.8	25	362.8	5	80.9	6	142.6	9	171.3	5	39.0	10	226.7
Blades							1	5.0						
Total Chert Debitage	93	1219.1	39	439.6	23	346.2	16	399.6	27	296.6	8	52.3	13	232.4
NONCHERT ARTIFACTS														
Hammerstone			2	905.6	2	1038.5								
Abrader														
Axe														
Pitted cobble														
Nutting stone														
Tested cobble														
Cobble														
Total Nonchert Artifacts			2	905.6	2	1038.5								
MISC. MATERIAL														
Limestone														
Fire-cracked rock							1	33.9						
Hematite														
Unmodified rock	1	155.6												
Slag														
Cinder														
Concrete														
Historic material														
Faunal remains														
Total Misc. Material	1	155.6					1	33.9						
PAGE TOTAL	96	1400.1	42	1358.7	25	1384.7	18	448.5	27	296.6	8	52.3	13	232.4
Utilized Flakes	1		1		1				2					

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	General Surface Collection Grid 11 Row 45 Unit 2 N	W(g)	General Surface Collection Grid 11 Row 46 Unit 1 N	W(g)	General Surface Collection Grid 11 Row 46 Unit 2 N	W(g)	General Surface Collection Grid 11 Row 47 Unit 1 N	W(g)	General Surface Collection Grid 11 Row 47 Unit 2 N	W(g)	General Surface Collection Grid 11 Row 48 Unit 1 N	W(g)	General Surface Collection Grid 11 Row 48 Unit 2 N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Projectile point/Knife														
End scraper														
Retouched flake														
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools														
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core														
Bipolar core														
Tested core														
Core fragment														
Primary flake											1	8.7		
Secondary flake	1	9.8	1	4.6	1	5.9			2	6.9	1	22.9		
Tertiary flake	2	66.0	1	22.1	1	0.5	4	36.5	1	19.6	3	10.7	2	11.6
Bifacial thin. flake														
Broken flake	13	97.4	1	1.5			4	45.2	2	39.3	8	15.1	1	2.0
Bipolar flake														
Shatter	5	51.9	5	31.2	3	80.8	5	41.8	5	55.0	4	97.2	2	28.1
Blades														
Total Chert Debitage	21	225.1	8	59.4	5	87.2	13	123.5	10	120.8	17	154.6	5	41.7
NONCHERT ARTIFACTS														
Hammerstone							1	122.5						
Abrader														
Axe	1	390.5												
Pitted cobble														
Nutting stone														
Tested cobble														
Cobble														
Total Nonchert Artifacts	1	390.5					1	122.5						
MISC. MATERIAL														
Limestone														
Fire-cracked rock														
Hematite														
Unmodified rock	1	271.3			1	144.7								
Slag														
Cinder														
Concrete														
Historic material														
Faunal remains														
Total Misc. Material	1	271.3			1	144.7								
PAGE TOTAL	23	886.9	8	59.4	6	231.9	14	246.0	10	120.8	17	154.6	5	41.7
Utilized Flakes							1				2			

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	General Surface Collection Grid 11 Row 49 Unit 1		General Surface Collection Grid 11 Row 52 Unit 2		General Surface Collection Grid 11 Row 53 Unit 1		General Surface Collection Grid 11 Row 53 Unit 2		General Surface Collection Grid 11 Row 54 Unit 1		General Surface Collection Grid 11 Row 55 Unit 1		General Surface Collection Grid 11 Row 55 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Projectile point/Knife	1	8.4												
End scraper														
Retouched flake														
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools	1	8.4												
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core														
Bipolar core														
Tested core														
Core fragment														
Primary flake														
Secondary flake													1	18.0
Tertiary flake			1	4.7	1	5.0								
Bifacial thin. flake														
Broken flake							2	12.8			3	3.0	1	0.4
Bipolar flake														
Shatter	1	0.8			1	17.7	1	4.9	3	153.9			1	33.1
Blades														
Total Chert Debitage	1	0.8	1	4.7	2	22.7	3	17.7	3	153.9	3	3.0	3	51.5
NONCHERT ARTIFACTS														
Hammerstone														
Abrader														
Axe														
Pitted cobble														
Nutting stone														
Tested cobble														
Cobble														
Total Nonchert Artifacts														
MISC. MATERIAL														
Limestone														
Fire-cracked rock														
Hematite														
Unmodified rock														
Slag														
Cinder														
Concrete														
Historic material														
Faunal remains														
Total Misc. Material														
PAGE TOTAL	2	9.2	1	4.7	2	22.7	3	17.7	3	153.9	3	3.0	3	51.5
Utilized Flakes														

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	General Surface Collection Grid 12 Row 31 Unit 1 N	W(g)	General Surface Collection Grid 12 Row 31 Unit 2 N	W(g)	General Surface Collection Grid 12 Row 32 Unit 1 N	W(g)	General Surface Collection Grid 12 Row 32 Unit 2 N	W(g)	General Surface Collection Grid 12 Row 33 Unit 1 N	W(g)	General Surface Collection Grid 12 Row 33 Unit 2 N	W(g)	General Surface Collection Grid 12 Row 34 Unit 1 N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Projectile point/Knife														
End scraper														
Retouched flake														
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools														
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core														
Bipolar core														
Tested core														
Core fragment														
Primary flake													1	9.6
Secondary flake			1	6.8										
Tertiary flake	2	12.5							1	3.4	1	1.5	2	37.1
Bifacial thin. flake														
Broken flake			1	2.6	4	4.8	2	3.6	4	3.6	6	31.3	5	9.9
Bipolar flake														
Shatter	1	72.9	3	84.4	3	18.0	1	0.2	13	328.1	7	182.8	2	14.1
Blades														
Total Chert Debitage	3	85.4	5	93.8	7	22.8	3	3.8	18	335.1	14	215.6	10	70.7
NONCHERT ARTIFACTS														
Hammerstone									1	149.9				
Abrader														
Axe														
Pitted cobble														
Nutting stone														
Tested cobble														
Cobble														
Total Nonchert Artifacts									1	149.9				
MISC. MATERIAL														
Limestone														
Fire-cracked rock									1	18.0				
Hematite													1	62.1
Unmodified rock									1	12.0				
Slag														
Cinder														
Concrete														
Historic material														
Faunal remains														
Total Misc. Material									2	30.0			1	62.1
PAGE TOTAL	3	85.4	5	93.8	7	22.8	3	3.8	21	515.0	14	215.6	11	132.8
Utilized Flakes														

	General Surface Collection Grid 12 Row 34 Unit 2		General Surface Collection Grid 12 Row 35 Unit 1		General Surface Collection Grid 12 Row 35 Unit 2		General Surface Collection Grid 12 Row 36 Unit 1		General Surface Collection Grid 12 Row 36 Unit 2		General Surface Collection Grid 12 Row 37 Unit 1		General Surface Collection Grid 12 Row 37 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface									1	166.5	1	59.4		
Thin biface														
Projectile point/Knife														
End scraper														
Retouched flake														
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools									1	166.5	1	59.4		
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core			1	238.3			1	157.6						
Bipolar core														
Tested core														
Core fragment														
Primary flake									1	3.2				
Secondary flake			1	63.2			1	25.7	2	49.1				
Tertiary flake					1	9.1	2	10.4			1	3.7		
Bifacial thin. flake														
Broken flake	3	87.5	8	37.6	6	17.1	8	53.6	5	58.0	3	2.2	1	13.5
Bipolar flake														
Shatter	3	432.6	17	137.0	5	202.3	10	421.8	2	68.6	8	331.7	4	269.7
Blades			1	11.8										
Total Chert Debitage	6	520.1	28	487.9	12	228.5	22	669.1	10	178.9	12	337.6	5	283.2
NONCHERT ARTIFACTS														
Hammerstone														
Abrader														
Axe														
Pitted cobble	1	292.5												
Nutting stone														
Tested cobble														
Cobble														
Total Nonchert Artifacts	1	292.5												
MISC. MATERIAL														
Limestone														
Fire-cracked rock														
Hematite														
Unmodified rock							1	128.1					1	122.6
Slag											1	4.0		
Cinder														
Concrete														
Historic material														
Faunal remains														
Total Misc. Material							1	128.1			1	4.0	1	122.6
PAGE TOTAL	7	812.6	28	487.9	12	228.5	23	797.2	11	345.4	14	401.0	6	405.8
Utilized Flakes														

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	General Surface Collection Grid 12 Row 38 Unit 1		General Surface Collection Grid 12 Row 38 Unit 2		General Surface Collection Grid 12 Row 39 Unit 1		General Surface Collection Grid 12 Row 39 Unit 2		General Surface Collection Grid 12 Row 40 Unit 1		General Surface Collection Grid 12 Row 40 Unit 2		General Surface Collection Grid 12 Row 41 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface					1	203.6								
Thick biface	1	50.4					1	50.8						
Thin biface														
Projectile point/Knife														
End scraper														
Retouched flake													1	11.7
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools	1	50.4			1	203.6	1	50.8					1	11.7
CHERT DEBITAGE														
Plano-convex core							1	112.4						
Multidirectional core							1	101.0						
Bipolar core					1	70.7								
Tested core					1	129.1							1	272.0
Core fragment														
Primary flake	1	1.8	1	4.6	1	2.3			1	3.6			1	25.5
Secondary flake	2	14.4			2	14.3	1	10.5	1	4.3			3	39.2
Tertiary flake	3	29.6			2	2.9	1	1.7	4	19.4	1	1.1	6	12.9
Bifacial thin. flake									1	1.6				
Broken flake	9	12.7	4	12.2	2	6.7	2	15.1			1	0.9	2	3.4
Bipolar flake									2	34.3			1	0.5
Shatter	12	185.8	4	269.7	16	211.0	5	92.1	4	55.3			6	453.6
Blades													1	3.8
Total Chert Debitage	27	244.3	9	286.5	25	437.0	11	332.8	13	118.5	2	2.0	21	810.9
NONCHERT ARTIFACTS														
Hammerstone														
Abrader														
Axe														
Pitted cobble														
Nutting stone														
Tested cobble														
Cobble														
Total Nonchert Artifacts														
MISC. MATERIAL														
Limestone					1	735.1								
Fire-cracked rock	5	106.2												
Hematite														
Unmodified rock	1	134.9									2	129.7	3	53.9
Slag														
Cinder														
Concrete														
Historic material														
Faunal remains														
Total Misc. Material	6	241.1			1	735.1					2	129.7	3	53.9
PAGE TOTAL	34	535.8	9	286.5	27	1375.7	12	383.6	13	118.5	4	131.7	25	876.5
Utilized Flakes													2	

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	General Surface Collection Grid 12 Row 41 Unit 2 N	W(g)	General Surface Collection Grid 12 Row 42 Unit 1 N	W(g)	General Surface Collection Grid 12 Row 42 Unit 2 N	W(g)	General Surface Collection Grid 12 Row 43 Unit 1 N	W(g)	General Surface Collection Grid 12 Row 43 Unit 2 N	W(g)	General Surface Collection Grid 12 Row 44 Unit 1 N	W(g)	General Surface Collection Grid 12 Row 44 Unit 2 N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Projectile point/Knife														
End scraper														
Retouched flake														
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools														
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core	1	65.4	1	115.0			1	53.4						
Bipolar core														
Tested core														
Core fragment	1	180.7												
Primary flake	1	12.8												
Secondary flake	2	29.9			2	21.1	1	42.5						
Tertiary flake	2	9.2			2	11.0					5	57.0		
Bifacial thin. flake	1	0.4												
Broken flake			2	5.1	2	0.9	7	6.6	3	1.8	3	4.7	5	9.9
Bipolar flake	1	5.6												
Shatter	5	151.9	9	348.1	3	17.9	7	214.6	3	452.2	7	155.1	5	251.9
Blades														
Total Chert Debitage	14	455.9	12	468.2	9	50.9	16	317.1	6	454.0	15	216.8	10	261.8
NONCHERT ARTIFACTS														
Hammerstone					1	258.8								
Abrader														
Axe														
Pitted cobble														
Nutting stone														
Tested cobble														
Cobble														
Total Nonchert Artifacts					1	258.8								
MISC. MATERIAL														
Limestone														
Fire-cracked rock														
Hematite														
Unmodified rock			1	1358.7									1	486.4
Slag														
Cinder														
Concrete														
Historic material														
Faunal remains														
Total Misc. Material			1	1358.7									1	486.4
PAGE TOTAL	14	455.9	13	1826.9	10	309.7	16	317.1	6	454.0	15	216.8	11	748.2
Utilized Flakes														

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	General Surface Collection Grid 12 Row 45 Unit 1		General Surface Collection Grid 12 Row 45 Unit 2		General Surface Collection Grid 12 Row 46 Unit 1		General Surface Collection Grid 12 Row 46 Unit 2		General Surface Collection Grid 12 Row 47 Unit 1		General Surface Collection Grid 12 Row 48 Unit 1		General Surface Collection Grid 12 Row 48 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Projectile point/Knife														
End scraper														
Retouched flake														
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools														
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core														
Bipolar core														
Tested core														
Core fragment														
Primary flake														
Secondary flake														
Tertiary flake									1	16.2				
Bifacial thin. flake														
Broken flake	4	14.1	2	1.5	1	3.5					2	18.9	3	12.0
Bipolar flake														
Shatter	4	59.4	3	71.2	5	92.9	4	43.0	1	9.8	3	58.0	3	21.9
Blades														
Total Chert Debitage	8	73.5	5	72.7	6	96.4	4	43.0	2	26.0	5	76.9	6	33.9
NONCHERT ARTIFACTS														
Hammerstone														
Abrader														
Axe														
Pitted cobble														
Nutting stone														
Tested cobble														
Cobble														
Total Nonchert Artifacts														
MISC. MATERIAL														
Limestone														
Fire-cracked rock														
Hematite														
Unmodified rock							2	124.1						
Slag														
Cinder														
Concrete														
Historic material														
Faunal remains														
Total Misc. Material							2	124.1						
PAGE TOTAL	8	73.5	5	72.7	6	96.4	6	167.1	2	26.0	5	76.9	6	33.9
Utilized Flakes														

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	General Surface Collection Grid 12 Row 49 Unit 1		General Surface Collection Grid 12 Row 49 Unit 2		General Surface Collection Grid 12 Row 50 Unit 1		General Surface Collection Grid 12 Row 50 Unit 2		General Surface Collection Grid 12 Row 51 Unit 1		General Surface Collection Grid 12 Row 51 Unit 2		General Surface Collection Grid 12 Row 52 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Projectile point/Knife														
End scraper														
Retouched flake														
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools														
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core														
Bipolar core														
Tested core														
Core fragment														
Primary flake														
Secondary flake	1	3.0									1	5.9	3	24.9
Tertiary flake					4	4.4	1	5.2	2	10.5				
Bifacial thin. flake														
Broken flake	1	0.7											3	7.7
Bipolar flake														
Shatter	3	46.7	1	4.7	6	37.0	3	250.7	1	66.6	1	149.5	4	626.2
Blades														
Total Chert Debitage	5	50.4	1	4.7	10	41.4	4	255.9	3	77.1	2	155.4	10	658.8
NONCHERT ARTIFACTS														
Hammerstone														
Abrader														
Axe														
Pitted cobble														
Nutting stone									1	663.2				
Tested cobble														
Cobble														
Total Nonchert Artifacts									1	663.2				
MISC. MATERIAL														
Limestone					1	272.2								
Fire-cracked rock														
Hematite														
Unmodified rock														
Slag														
Cinder														
Concrete													1	2298.2
Historic material														
Faunal remains														
Total Misc. Material													1	2298.2
PAGE TOTAL	5	50.4	1	4.7	10	41.4	4	255.9	4	740.3	2	155.4	11	2957.0
Utilized Flakes														

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	General Surface Collection Grid 12 Row 52 Unit 2 N	W(g)	General Surface Collection Grid 12 Row 53 Unit 1 N	W(g)	General Surface Collection Grid 12 Row 53 Unit 2 N	W(g)	General Surface Collection Grid 12 Row 54 Unit 1 N	W(g)	General Surface Collection Grid 12 Row 54 Unit 2 N	W(g)	General Surface Collection Grid 12 Row 55 Unit 1 N	W(g)	General Surface Collection Grid 12 Row 55 Unit 2 N	W(g)
CHERT TOOLS														
Rough biface	1	64.9												
Thick biface														
Thin biface											1	1.7		
Projectile point/Knife														
End scraper														
Retouched flake			2	7.5										
Perforating tool														
Uniface fragment														
Wedge											1	44.2		
Total Chert Tools	1	64.9	2	7.5							2	45.9		
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core														
Bipolar core														
Tested core														
Core fragment														
Primary flake	1	4.3												
Secondary flake							1	20.1			1	16.7		
Tertiary flake			1	8.8			1	9.9					1	0.4
Bifacial thin. flake														
Broken flake			1	0.4					1	2.9	2	0.9		
Bipolar flake														
Shatter	6	359.5	3	92.1	4	260.1	7	424.6	2	26.8	12	563.9	5	229.4
Blades			1	3.2										
Total Chert Debitage	7	363.8	6	104.5	4	260.1	9	454.6	3	29.7	15	581.5	6	229.8
NONCHERT ARTIFACTS														
Hammerstone	1	158.5							1	807.5				
Abrader														
Axe														
Pitted cobble														
Nutting stone														
Tested cobble														
Cobble														
Total Nonchert Artifacts	1	158.5							1	807.5				
MISC. MATERIAL														
Limestone														
Fire-cracked rock														
Hematite														
Unmodified rock											1	186.7		
Slag														
Cinder														
Concrete														
Historic material														
Faunal remains														
Total Misc. Material											1	186.7		
PAGE TOTAL	9	587.2	8	112.0	4	260.1	9	454.6	4	837.2	18	814.1	6	229.8
Utilized Flakes														

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	General Surface Collection Grid 13 Row 30 Unit 1 N	W(g)	General Surface Collection Grid 13 Row 30 Unit 2 N	W(g)	General Surface Collection Grid 13 Row 31 Unit 1 N	W(g)	General Surface Collection Grid 13 Row 31 Unit 2 N	W(g)	General Surface Collection Grid 13 Row 32 Unit 1 N	W(g)	General Surface Collection Grid 13 Row 32 Unit 2 N	W(g)	General Surface Collection Grid 13 Row 33 Unit 1 N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface							1	4.3						
Projectile point/Knife														
End scraper														
Retouched flake														
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools							1	4.3						
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core														
Bipolar core														
Tested core														
Core fragment														
Primary flake														
Secondary flake					2	21.7								
Tertiary flake			2	2.3			1	1.0						
Bifacial thin. flake														
Broken flake														
Bipolar flake														
Shatter	2	31.6			2	251.9	2	80.3	2	102.8	1	9.1	1	2.6
Blades														
Total Chert Debitage	2	31.6	2	2.3	4	273.6	3	81.3	2	102.8	1	9.1	1	2.6
NONCHERT ARTIFACTS														
Hammerstone														
Abrader														
Axe														
Pitted cobble											1	202.2		
Nutting stone														
Tested cobble														
Cobble														
Total Nonchert Artifacts											1	202.2		
MISC. MATERIAL														
Limestone														
Fire-cracked rock														
Hematite														
Unmodified rock			1	47.9										
Slag														
Cinder														
Concrete														
Historic material														
Faunal remains														
Total Misc. Material			1	47.9										
PAGE TOTAL	2	31.6	3	50.2	4	273.6	4	85.6	2	102.8	2	211.3	1	2.6
Utilized Flakes														

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	General Surface Collection Grid 13 Row 34 Unit 1 N	W(g)	General Surface Collection Grid 13 Row 34 Unit 2 N	W(g)	General Surface Collection Grid 13 Row 35 Unit 1 N	W(g)	General Surface Collection Grid 13 Row 35 Unit 2 N	W(g)	General Surface Collection Grid 13 Row 36 Unit 1 N	W(g)	General Surface Collection Grid 13 Row 36 Unit 2 N	W(g)	General Surface Collection Grid 13 Row 37 Unit 1 N	W(g)
CHERT TOOLS														
Rough biface					1	25.9							1	67.5
Thick biface														
Thin biface														
Projectile point/Knife														
End scraper														
Retouched flake														
Perforating tool					1	19.7								
Uniface fragment														
Wedge														
Total Chert Tools					2	45.6							1	67.5
CHERT DEBITAGE														
Plano-convex														
Multidirectional core														
Bipolar core														
Tested core														
Core fragment														
Primary flake					1	0.5			1	18.8				
Secondary flake							2	11.1	1	6.7	1	7.9	1	16.7
Tertiary flake	1	1.2	1	1.3	5	17.4	2	0.1					1	2.0
Bifacial thin. flake							1	3.0						
Broken flake							1	2.1						
Bipolar flake														
Shatter	2	168.2	1	2.1	5	352.5	4	5.0	3	184.5	1	20.0	5	144.6
Blades														
Total Chert Debitage	3	169.4	2	3.4	11	370.4	10	21.3	5	210.0	2	27.9	7	163.3
NONCHERT ARTIFACTS														
Hammerstone														
Abrader														
Axe														
Pitted cobble														
Nutting stone														
Tested cobble	1	446.2												
Cobble														
Total Nonchert Artifacts	1	446.2												
MISC. MATERIAL														
Limestone														
Fire-cracked rock														
Hematite														
Unmodified rock														
Slag														
Cinder														
Concrete														
Historic material														
Faunal remains														
Total Misc. Material														
PAGE TOTAL	4	615.6	2	3.4	13	416.0	10	21.3	5	210.0	2	27.9	8	230.8
Utilized Flakes														

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	General Surface Collection Grid 13 Row 37 Unit 2		General Surface Collection Grid 13 Row 38 Unit 1		General Surface Collection Grid 13 Row 38 Unit 2		General Surface Collection Grid 13 Row 39 Unit 1		General Surface Collection Grid 13 Row 39 Unit 2		General Surface Collection Grid 13 Row 40 Unit 1		General Surface Collection Grid 13 Row 40 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface											1	55.8		
Thick biface														
Thin biface											1	5.2		
Projectile point/Knife														
End scraper											1	25.4		
Retouched flake														
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools											3	86.4		
CHERT DEBITAGE														
Plano-convex														
Multidirectional core														
Bipolar core											1	124.5		
Tested core														
Core fragment														
Primary flake													1	60.2
Secondary flake							1	10.4	1	6.2				
Tertiary flake	1	1.1			1	0.3					2	3.6		
Bifacial thin. flake											1	3.6		
Broken flake	3	2.2	4	65.7			2	3.2			1	2.9		
Bipolar flake														
Shatter			3	1.3	3	87.8	5	129.6	1	1.0	2	10.6	5	51.7
Blades														
Total Chert Debitage	4	3.3	7	67.0	4	88.1	8	143.2	2	7.2	7	145.2	6	111.9
NONCHERT ARTIFACTS														
Hammerstone									1	1344.1				
Abrader														
Axe														
Pitted cobble														
Nutting stone														
Tested cobble											1	203.8		
Cobble														
Total Nonchert Artifacts											1	203.8		
MISC. MATERIAL														
Limestone														
Fire-cracked rock														
Hematite														
Unmodified rock														
Slag														
Cinder														
Concrete														
Historic material														
Faunal remains														
Total Misc. Material														
PAGE TOTAL	4	3.3	7	67.0	4	88.1	8	143.2	2	7.2	11	435.4	6	111.9
Utilized Flakes														

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	General Surface Collection Grid 13 Row 41 Unit 1 N	W(g)	General Surface Collection Grid 13 Row 41 Unit 2 N	W(g)	General Surface Collection Grid 13 Row 42 Unit 1 N	W(g)	General Surface Collection Grid 13 Row 42 Unit 2 N	W(g)	General Surface Collection Grid 13 Row 43 Unit 1 N	W(g)	General Surface Collection Grid 13 Row 44 Unit 1 N	W(g)	General Surface Collection Grid 13 Row 44 Unit 2 N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Projectile point/Knife														
End scraper			1	17.8										
Retouched flake	1	8.4							2	12.6				
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools	1	8.4	1	17.8					2	12.6				
CHERT DEBITAGE														
Plano-convex														
Multidirectional core														
Bipolar core							1	56.9	1	142.9				
Tested core														
Core fragment														
Primary flake											1	2.5		
Secondary flake					1	5.8			1	19.0				
Tertiary flake			1	0.8	2	5.9			1	0.3				
Bifacial thin. flake									1	2.1				
Broken flake	5	9.8							1	0.8				
Bipolar flake														
Shatter			3	7.1	6	963.4	1	11.1	2	42.3			3	125.0
Blades														
Total Chert Debitage	5	9.8	4	7.9	9	975.1	2	68.0	7	207.4	1	2.5	3	125.0
NONCHERT ARTIFACTS														
Hammerstone														
Abrader														
Axe														
Pitted cobble														
Nutting stone														
Tested cobble	1	134.3												
Cobble														
Total Nonchert Artifacts	1	134.3												
MISC. MATERIAL														
Limestone														
Fire-cracked rock														
Hematite														
Unmodified rock														
Slag														
Cinder														
Concrete														
Historic material														
Faunal remains														
Total Misc. Material														
PAGE TOTAL	7	152.5	5	25.7	9	975.1	2	68.0	9	220.0	1	2.5	3	125.0
Utilized Flakes														

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	General Surface Collection Grid 13 Row 45 Unit 1 N	W(g)	General Surface Collection Grid 13 Row 45 Unit 2 N	W(g)	General Surface Collection Grid 13 Row 46 Unit 1 N	W(g)	General Surface Collection Grid 13 Row 46 Unit 2 N	W(g)	General Surface Collection Grid 13 Row 47 Unit 1 N	W(g)	General Surface Collection Grid 13 Row 47 Unit 2 N	W(g)	General Surface Collection Grid 13 Row 48 Unit 1 N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Projectile point/Knife														
End scraper														
Retouched flake														
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools														
CHERT DEBITAGE														
Plano-convex														
Multidirectional core														
Bipolar core														
Tested core														
Core fragment														
Primary flake			1	15.6			1	1.8						
Secondary flake	1	7.1											2	27.0
Tertiary flake	1	1.8			2	5.3			2	1.4				
Bifacial thin. flake														
Broken flake			1	0.4										
Bipolar flake														
Shatter	2	23.8			6	75.6	1	4.3	3	125.5	2	16.7	4	59.0
Blades					1	47.2								
Total Chert Debitage	4	32.7	2	16.0	9	128.1	2	6.1	5	126.9	2	16.7	6	86.0
NONCHERT ARTIFACTS														
Hammerstone														
Abrader														
Axe														
Pitted cobble														
Nutting stone														
Tested cobble														
Cobble														
Total Nonchert Artifacts														
MISC. MATERIAL														
Limestone														
Fire-cracked rock														
Hematite														
Unmodified rock	1	61.2	1	268.7										
Slag														
Cinder														
Concrete														
Historic material														
Faunal remains														
Total Misc. Material	1	61.2	1	268.7										
PAGE TOTAL	5	93.9	3	284.7	9	128.1	2	6.1	5	126.9	2	16.7	6	86.0
Utilized Flakes														

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	General Surface Collection Grid 13 Row 48 Unit 2		General Surface Collection Grid 13 Row 49 Unit 1		General Surface Collection Grid 13 Row 49 Unit 2		General Surface Collection Grid 13 Row 50 Unit 1		General Surface Collection Grid 13 Row 50 Unit 2		General Surface Collection Grid 13 Row 51 Unit 1		General Surface Collection Grid 13 Row 51 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface											1	142.5		
Thin biface														
Projectile point/Knife														
End scraper														
Retouched flake														
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools											1	142.5		
CHERT DEBITAGE														
Plano-convex														
Multidirectional core														
Bipolar core														
Tested core														
Core fragment														
Primary flake														
Secondary flake					1	11.5	1	2.3					1	7.1
Tertiary flake			1	1.7			1	19.2	2	3.6	1	2.4	2	9.5
Bifacial thin. flake														
Broken flake			1	1.1			2	3.1			1	1.2		
Bipolar flake														
Shatter	2	2.7	1	57.9	1	3.7	4	175.0	1	2.7	3	73.4		
Blades														
Total Chert Debitage	2	2.7	3	60.7	2	15.2	8	199.6	3	6.3	5	77.0	3	16.6
NONCHERT ARTIFACTS														
Hammerstone														
Abrader														
Axe														
Pitted cobble														
Nutting stone														
Tested cobble														
Cobble														
Total Nonchert Artifacts														
MISC. MATERIAL														
Limestone														
Fire-cracked rock														
Hematite														
Unmodified rock							3	289.6					1	39.5
Slag														
Cinder														
Concrete														
Historic material														
Faunal remains														
Total Misc. Material							3	289.6					1	39.5
PAGE TOTAL	2	2.7	3	60.7	2	15.2	11	489.2	3	6.3	6	219.5	4	56.1
Utilized Flakes							1							

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	General Surface Collection Grid 13 Row 52 Unit 1		General Surface Collection Grid 13 Row 53 Unit 1		General Surface Collection Grid 13 Row 53 Unit 2		General Surface Collection Grid 13 Row 54 Unit 2		General Surface Collection Grid 13 Row 55 Unit 1		General Surface Collection Grid 13 Row 55 Unit 2		Machine Trench 27	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Projectile point/Knife														
End scraper														
Retouched flake														
Perforating tool														
Uniface fragment					1	9.6								
Wedge														
Total Chert Tools					1	9.6								
CHERT DEBITAGE														
Plano-convex														
Multidirectional core														
Bipolar core														
Tested core														
Core fragment														
Primary flake											1	5.3		
Secondary flake					1	4.9			1	4.7	1	13.0		
Tertiary flake	1	15.2												
Bifacial thin. flake			1	1.1										
Broken flake														
Bipolar flake														
Shatter	1	2.0	4	149.7	1	48.7	2	49.0	3	148.4	1	20.8	2	131.2
Blades														
Total Chert Debitage	2	17.2	5	150.8	2	53.6	2	49.0	4	153.1	3	39.1	2	131.2
NONCHERT ARTIFACTS														
Hammerstone														
Abrader														
Axe														
Pitted cobble														
Nutting stone														
Tested cobble														
Cobble														
Total Nonchert Artifacts														
MISC. MATERIAL														
Limestone													1	90.7
Fire-cracked rock														
Hematite														
Unmodified rock			1	516.0										
Slag														
Cinder														
Concrete														
Historic material														
Faunal remains														
Total Misc. Material			1	516.0									1	90.7
PAGE TOTAL	2	17.2	6	666.8	3	63.2	2	49.0	4	153.1	3	39.1	3	221.9
Utilized Flakes	1													

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	Machine Trench 28		Machine Trench 44		Machine Trench 45		Machine Trench 48		Machine Trench 49		Machine Trench 80 East extension		Machine Trench 44 Feature 9/158	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface							1	20.3						
Thick biface			1	13.1	1	113.5	1	18.8						
Thin biface			1	4.8										
Projectile point/Knife														
End scraper					1	29.4								
Retouched flake			10	197.8	4	128.7	3	55.7						
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools			12	215.7	6	271.6	5	94.8						
CHERT DEBITAGE														
Plano-convex														
Multidirectional core			2	167.3			1	155.0						
Bipolar core														
Tested core														
Core fragment														
Primary flake			4	20.5	1	12.0	1	3.7					1	10.5
Secondary flake			18	152.6	6	133.4	7	111.1			5	37.9	1	46.8
Tertiary flake			2	17.4			4	17.7					8	104.7
Bifacial thin. flake			1	5.4			1	8.2						
Broken flake			18	70.7	2	5.4	9	15.3	2	12.1	11	34.5	2	2.6
Bipolar flake														
Shatter	1	5.9	24	2143.8	7	521.7	20	2402.7	2	113.5	6	25.9	7	39.7
Blades													1	69.4
Total Chert Debitage	1	5.9	69	2577.7	16	672.5	43	2713.7	4	125.6	22	98.3	20	273.7
NONCHERT ARTIFACTS														
Hammerstone			2	660.2			1	408.6						
Abrader					1	1.1								
Axe														
Pitted cobble					1	264.7								
Nutting stone														
Tested cobble														
Cobble														
Total Nonchert Artifacts			2	660.2	2	265.8	1	408.6						
MISC. MATERIAL														
Limestone									3	425.1				
Fire-cracked rock	1	66.5	5	71.0	5	295.5	2	17.9	1	49.3	7	27.0		
Hematite														
Unmodified rock	2	291.9	5	449.4	1	90.9							2	567.5
Slag														
Cinder														
Concrete														
Historic material														
Faunal remains														
Total Misc. Material	3	358.4	10	520.4	6	386.4	2	17.9	4	474.4	7	27.0	2	567.5
PAGE TOTAL	4	364.3	93	3974.0	30	1596.3	51	3235.0	8	600.0	29	125.3	22	841.2
Utilized Flakes			7		2		5				3			

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	Machine Trench 44 Feature 10/157		Machine Trench 45 Feature 11 North 1/2		Machine Trench 45 Feature 11 South 1/2		Machine Trench 47 Feature 12		Machine Trench 80 Feature 19		Piece Plot 15		Piece Plot 28	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Projectile point/Knife											1	8.4	1	1.0
End scraper														
Retouched flake							1	33.3						
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools							1	33.3			1	8.4	1	1.0
CHERT DEBITAGE														
Plano-convex														
Multidirectional core							1	39.7						
Bipolar core														
Tested core														
Core fragment														
Primary flake							2	13.6	1	8.9				
Secondary flake					2	3.2	7	60.8						
Tertiary flake	2	18.4	2	18.4	6	1.3	5	4.0	2	1.8				
Bifacial thin. flake														
Broken flake	6	17.9	6	17.9	10	4.4	6	34.4	5	6.9				
Bipolar flake														
Shatter	5	7.0	5	7.0	10	6.8	18	445.7	10	38.3				
Blades														
Total Chert Debitage	13	43.3	13	43.3	28	15.7	39	598.2	18	55.9				
NONCHERT ARTIFACTS														
Hammerstone														
Abrader														
Axe														
Pitted cobble														
Nutting stone														
Tested cobble														
Cobble														
Total Nonchert Artifacts														
MISC. MATERIAL														
Limestone	3	11.6												
Fire-cracked rock					2	13.5			5	96.9				
Hematite							1	7.3						
Unmodified rock			3	11.6										
Slag														
Cinder														
Concrete														
Historic material														
Faunal remains														
Total Misc. Material	3	11.6	3	11.6	2	13.5	1	7.3	5	96.9				
PAGE TOTAL	16	54.9	16	54.9	30	29.2	41	638.8	23	152.8	1	8.4	1	1.0
Utilized Flakes					1		7		1					

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	Piece Plot 33		Machine Trench 28 Test Unit 2 A Horizon		Machine Trench 28 Test Unit 2 E Horizon		Machine Trench 28 Test Unit 2 B-E Horizon		Farm Lot 7m east of farmhouse 25-55 cmbs		Farm Lot Line 1 Post hole 1 Plow zone		Farm Lot Line 1 Post hole 3 0-10cmbs	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Projectile point/Knife														
End scraper														
Retouched flake														
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools														
CHERT DEBITAGE														
Plano-convex														
Multidirectional core														
Bipolar core														
Tested core														
Core fragment														
Primary flake					2	4.8								
Secondary flake			3	13.7	1	1.7								
Tertiary flake			3	11.2	1	2.3			2	21.6				
Bifacial thin. flake														
Broken flake			6	5.8	11	19.2	6	4.1	1	0.2				
Bipolar flake														
Shatter			15	23.7	31	377.4	14	12.6	3	13.0	2	2.2	1	3.2
Blades														
Total Chert Debitage			27	54.4	46	405.4	20	16.7	6	34.8	2	2.2	1	3.2
NONCHERT ARTIFACTS														
Hammerstone														
Abrader														
Axe														
Pitted cobble														
Nutting stone														
Tested cobble														
Cobble	1	2662.0												
Total Nonchert Artifacts	1	2662.0												
MISC. MATERIAL														
Limestone														
Fire-cracked rock														
Hematite														
Unmodified rock							3	1.5						
Slag			3	5.3	5	0.9	8	3.2						
Cinder			1	0.2										
Concrete														
Historic material			2	11.8			2	1.3						
Faunal remains							1	0.1						
Total Misc. Material			6	17.3	5	0.9	14	6.1						
PAGE TOTAL	1	2662.0	33	71.7	51	406.3	34	22.8	6	34.8	2	2.2	1	3.2
Utilized Flakes														

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	Line 1 Farm Lot Post hole 5		Line 1 Farm Lot Post hole 6 20-30 cmbs		Line 1 Farm Lot Post hole 7 35 cmbs		Line 1 Farm Lot Post hole 8		Line 1 Farm Lot Post hole 9 10-30 cmbs		Line 1 Farm Lot Post hole 10 50 cmbs		Line 1 Farm Lot Post hole 11	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Projectile point/Knife														
End scraper														
Retouched flake														
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools														
CHERT DEBITAGE														
Plano-convex														
Multidirectional core														
Bipolar core														
Tested core														
Core fragment														
Primary flake			1	3.8			1	4.4						
Secondary flake											1	2.5		
Tertiary flake			1	1.0	1	4.8	1	9.0	1	1.0				
Bifacial thin. flake														
Broken flake			1	1.2			2	5.7	2	1.5				
Bipolar flake														
Shatter	3	8.2	1	1.5			3	9.3	1	1.4			2	33.4
Blades														
Total Chert Debitage	3	8.2	4	7.5	1	4.8	7	28.4	4	3.9	1	2.5	2	33.4
NONCHERT ARTIFACTS														
Hammerstone														
Abrader														
Axe														
Pitted cobble														
Nutting stone														
Tested cobble														
Cobble														
Total Nonchert Artifacts														
MISC. MATERIAL														
Limestone														
Fire-cracked rock													1	17.8
Hematite														
Unmodified rock														
Slag														
Cinder	1	0.9												
Concrete														
Historic material														
Faunal remains														
Total Misc. Material	1	0.9											1	17.8
PAGE TOTAL	4	9.1	4	7.5	1	4.8	7	28.4	4	3.9	1	2.5	3	51.2
Utilized Flakes					1									

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	Line 1 N	Farm Lot Post hole 12 W(g)	Line 1 N	Farm Lot Post hole 12 25-35 cmbs W(g)	Line 2 N	Farm Lot Post hole 1 20-40 cmbs W(g)	Line 2 N	Farm Lot Post hole 3 15-30 cmbs W(g)	Line 2 N	Farm Lot Post hole 7 5-30 cmbs W(g)	Line 2 N	Farm Lot Post hole 8 35 cmbs W(g)	Line 2 N	Farm Lot Post hole 8 40 cmbs W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Projectile point/Knife														
End scraper														
Retouched flake														
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools														
CHERT DEBITAGE														
Plano-convex														
Multidirectional core														
Bipolar core														
Tested core														
Core fragment														
Primary flake														
Secondary flake														
Tertiary flake							2	1.3	1	1.9				
Bifacial thin. flake														
Broken flake	1	1.1	1	1.3			1	1.2	3	2.6				
Bipolar flake														
Shatter	2	2.0			3	9.6			1	5.1	1	1.4		
Blades														
Total Chert Debitage	3	3.1	1	1.3	3	9.6	3	2.5	5	9.6	1	1.4		
NONCHERT ARTIFACTS														
Hammerstone														
Abrader														
Axe														
Pitted cobble														
Nutting stone														
Tested cobble														
Cobble														
Total Nonchert Artifacts														
MISC. MATERIAL														
Limestone														
Fire-cracked rock														
Hematite														
Unmodified rock													1	13.6
Slag														
Cinder														
Concrete														
Historic material														
Faunal remains														
Total Misc. Material													1	13.6
PAGE TOTAL	3	3.1	1	1.3	3	9.6	3	2.5	5	9.6	1	1.4	1	13.6
Utilized Flakes									1					

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	Line 2 N	Farm Lot Post hole 10 30 cmbs W(g)	Line 3 N	Farm Lot Post hole 2 30 cmbs W(g)	Line 3 N	Farm Lot Post hole 2 35 cmbs W(g)	Line 3 N	Farm Lot Post hole 2 40 cmbs W(g)	Line 4 N	Farm Lot Post hole 1 W(g)	Line 4 N	Farm Lot Post hole 2 W(g)	Line 4 N	Farm Lot Post hole 3 5-10 cmbs W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Projectile point/Knife														
End scraper														
Retouched flake														
Perforating tool														
Uniface fragment														
Wedge														
Total Chert Tools														
CHERT DEBITAGE														
Plano-convex														
Multidirectional core														
Bipolar core											1	54.8		
Tested core														
Core fragment														
Primary flake							1	1.1						
Secondary flake														
Tertiary flake	1	1.5			1	1.0			1	3.4			1	2.1
Bifacial thin. flake														
Broken flake			1	0.4										
Bipolar flake														
Shatter														
Blades														
Total Chert Debitage	1	1.5	1	0.4	1	1.0	1	1.1	1	3.4	1	54.8	1	2.1
NONCHERT ARTIFACTS														
Hammerstone														
Abrader														
Axe														
Pitted cobble														
Nutting stone														
Tested cobble														
Cobble														
Total Nonchert Artifacts														
MISC. MATERIAL														
Limestone			2	1.0										
Fire-cracked rock														
Hematite														
Unmodified rock														
Slag														
Cinder														
Concrete														
Historic material														
Faunal remains														
Total Misc. Material			2	1.0										
PAGE TOTAL	1	1.5	3	1.4	1	1.0	1	1.1	1	3.4	1	54.8	1	2.1
Utilized Flakes														

APPENDIX A
(11MO891)

	Farm Lot Line 4 Posthole 3 40 cmbs N	W(g)
CHERT TOOLS		
Rough biface		
Thick biface		
Thin biface		
Projectile point/Knife		
End scraper		
Retouched flake		
Perforating tool		
Uniface fragment		
Wedge		
Total Chert Tools		
CHERT DEBITAGE		
Plano-convex		
Multidirectional core		
Bipolar core		
Tested core		
Core fragment		
Primary flake		
Secondary flake		
Tertiary flake		
Bifacial thin. flake		
Broken flake		
Bipolar flake		
Shatter	1	2.7
Blades		
Total Chert Debitage	1	2.7
NONCHERT ARTIFACTS		
Hammerstone		
Abrader		
Axe		
Pitted cobble		
Nutting stone		
Tested cobble		
Cobble		
Total Nonchert Artifacts		
MISC. MATERIAL		
Limestone		
Fire-cracked rock		
Hematite		
Unmodified rock		
Slag		
Cinder		
Concrete		
Historic material		
Faunal remains		
Total Misc. Material		
PAGE TOTAL	1	2.7
Utilized Flakes		

APPENDIX A
(11MO892)

	General Surface Collection Grid 24 Row 9 N	Unit 1 W(g)	General Surface Collection Grid 24 Row 10 N	Unit 1 W(g)	General Surface Collection Grid 24 Row 11 N	Unit 1 W(g)	General Surface Collection Grid 24 Row 12 N	Unit 1 W(g)	General Surface Collection Grid 24 Row 13 N	Unit 1 W(g)	General Surface Collection Grid 24 Row 14 N	Unit 1 W(g)	General Surface Collection Grid 27 Row 1 N	Unit 1 W(g)
CHERT TOOLS														
Thin Biface														
CHERT DEBITAGE														
Multidirectional core														
Bipolar core													1	184.2
Primary flake														
Secondary flake														
Tertiary flake	3	15.8			1	0.3	2	0.6					2	4.9
Broken flake			2	0.5	1	0.3	2	2.5	2	2.1			3	2.4
Shatter			3	30.4	2	27.3	7	233.1	2	360.7			3	10.4
Total Chert Debitage	3	15.8	5	30.9	4	27.9	11	236.2	4	362.8			9	201.9
NONCHERT ARTIFACTS														
Pitted cobble														
MISC. MATERIAL														
Limestone											4	6.2		
Fire-cracked rock					1	73.6								
Sandstone														
Total Misc. Material					1	73.6					4	6.2		
PAGE TOTAL	3	15.8	5	30.9	5	101.5	11	236.2	4	362.8	4	6.2	9	201.9
Utilized Flakes														

APPENDIX A
(11MO892)

	General Surface Collection Grid 27 Row 2 N	Unit 1 W(g)	General Surface Collection Grid 27 Row 3 N	Unit 1 W(g)	General Surface Collection Grid 27 Row 4 N	Unit 1 W(g)	General Surface Collection Grid 27 Row 5 N	Unit 1 W(g)	General Surface Collection Grid 27 Row 6 N	Unit 1 W(g)	Machine Trench 94 N	W(g)	Machine Trench 96 N	W(g)
CHERT TOOLS														
Thin Biface											1	23.9		
CHERT DEBITAGE														
Multidirectional core													1	699.2
Bipolar core														
Primary flake	1	30.0					1	3.3			1	11.7	1	47.1
Secondary flake			1	4.0			3	56.7			3	28.0	4	78.4
Tertiary flake			1	2.6	2	5.4	2	3.4	1	0.4	1	0.7	2	0.2
Broken flake			3	4.0	1	0.6	3	5.8			2	9.0	9	26.4
Shatter	4	126.2	5	502.7	3	110.6	1	13.3	2	48.9	8	328.9	11	337.5
Total Chert Debitage	5	156.2	10	513.3	6	116.6	10	82.5	3	49.3	15	378.3	28	1188.8
NONCHERT ARTIFACTS														
Pitted cobble													1	580.7
MISC. MATERIAL														
Limestone											2	8.8	3	28.0
Fire-cracked rock													4	20.0
Sandstone											1	12.2		
Total Misc. Material											3	21.0	7	48.0
PAGE TOTAL	5	156.2	10	513.3	6	116.6	10	82.5	3	49.3	19	423.2	36	1817.5
Utilized Flakes			1				1						4	

APPENDIX A
(11MO893)

	General Surface Collection Grid 26 Row 19 Unit 1		General Surface Collection Grid 26 Row 20 Unit 1		General Surface Collection Grid 26 Row 21 Unit 1		General Surface Collection Grid 26 Row 22 Unit 1		General Surface Collection Grid 26 Row 23 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT DEBITAGE										
Secondary flake			2	1.8	2	10.9			1	2.1
Tertiary flake	1	0.3							2	2.3
Broken flake			1	4.6	2	3.5	1	1.3		
Shatter	1	0.5	1	2.7	1	122.9			1	0.2
Total Chert Debitage	2	0.8	4	9.1	5	137.3	1	1.3	4	4.6

APPENDIX A
(11MO894)

	General Surface Collection Grid 29 Row 46 Unit 1		General Surface Collection Grid 29 Row 47 Unit 1		General Surface Collection Grid 29 Row 50 Unit 1		General Surface Collection Grid 29 Row 52 Unit 1		General Surface Collection Grid 29 Row 53 Unit 1		General Surface Collection Grid 29 Row 54 Unit 1		General Surface Collection Grid 29 Row 55 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Thick biface														
CHERT DEBITAGE														
Multidirectional core														
Primary flake			1	0.8										
Secondary flake							1	3.3						
Tertiary flake														
Broken flake														
Shatter	2	25.2							1	0.3	2	125.8	2	0.9
Total Chert Debitage	2	25.2	1	0.8			1	3.3	1	0.3	2	125.8	2	0.9
NONCHERT ARTIFACTS														
Hammerstone														
MISC. MATERIAL														
Limestone					1	0.9								
Fire-cracked rock														
Total Misc. Material					1	0.9								
PAGE TOTAL	2	25.2	1	0.8	1	0.9	1	3.3	1	0.3	2	125.8	2	0.9
Utilized Flakes														

APPENDIX A
(11MO894)

	General Surface Collection Grid 29 Row 56 Unit 1		General Surface Collection Grid 29 Row 57 Unit 1		General Surface Collection Grid 29 Row 58 Unit 1		General Surface Collection Grid 30 Row 1 Unit 1		General Surface Collection Grid 30 Row 3 Unit 1		General Surface Collection Grid 30 Row 6 Unit 1		Machine Trench 104	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Thick biface	1	97.6												
CHERT DEBITAGE														
Multidirectional core														
Primary flake	1	0.4												
Secondary flake	3	14.6												
Tertiary flake	3	3.9			1	0.4								
Broken flake	3	1.5	2	26.6			1	0.2					1	1.9
Shatter	4	83.1	1	4.7	3	62.1			1	0.8	1	1.5		
Total Chert Debitage	14	103.5	3	31.3	4	62.5	1	0.2	1	0.8	1	1.5	1	1.9
NONCHERT ARTIFACTS														
Hammerstone														
MISC. MATERIAL														
Limestone														
Fire-cracked rock					5	324.6								
Total Misc. Material					5	324.6								
PAGE TOTAL	15	201.1	3	31.3	9	387.1	1	0.2	1	0.8	1	1.5	1	1.9
Utilized Flakes			1											

APPENDIX A
(11MO894)

	Machine Trench 108		Machine Trench 109	
	N	W(g)	N	W(g)
CHERT TOOLS				
Thick biface				
CHERT DEBITAGE				
Multidirectional core			1	194.2
Primary flake			1	1.6
Secondary flake			1	12.0
Tertiary flake			4	2.8
Broken flake	1	1.1	4	3.2
Shatter			6	29.3
Total Chert Debitage	1	1.1	17	243.1
NONCHERT ARTIFACTS				
Hammerstone	1	595.3		
MISC. MATERIAL				
Limestone				
Fire-cracked rock				
Total Misc. Material				
PAGE TOTAL	2	596.4	17	243.1
Utilized Flakes				

APPENDIX A
(11MO895)

	General Surface Collection Grid 30 Row 13 Unit 1		General Surface Collection Grid 30 Row 14 Unit 1		General Surface Collection Grid 30 Row 15 Unit 1		General Surface Collection Grid 30 Row 17 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT DEBITAGE								
Broken flake					1	0.2		
Shatter					2	88.7		
Total Chert Debitage					3	88.9		
MISC. MATERIAL								
Unmodified rock	4	336.5	2	91.3				
Historic Ceramic					1	2.6		
Historic Glass							1	5.1
Total Misc. Material	4	336.5	2	91.3	1	2.6	1	5.1
PAGE TOTAL	4	336.5	2	91.3	4	91.5	1	5.1

APPENDIX A
(11MO896)

	Machine Trench 112		Machine Trench 113	
	N	W(g)	N	W(g)
CHERT TOOLS				
Sidescraper			1	227.0
CHERT DEBITAGE				
Multidirectional core			1	230.0
Bipolar core			1	110.4
Exhausted core			1	88.6
Tertiary flake			2	3.2
Broken flake			1	2.1
Shatter	2	180.4	2	9.8
Total Chert Debitage	2	180.4	8	444.1
NONCHERT ARTIFACTS				
Hammerstone			1	762.7
MISC. MATERIAL				
Hematite/Ochre	1	3.3		
Limestone	1	20.6	1	0.4
Fire-cracked rock			4	9.7
Total Misc. Material	2	23.9	5	10.1
PAGE TOTAL	4	204.3	15	1443.9

APPENDIX B.

MATERIAL INVENTORIES FOR OFF-SITE COLLECTIONS

APPENDIX B
(Off-Site Collection Grid 1)

	General Surface Collection Grid 1 Row 11 Unit 1		General Surface Collection Grid 1 Row 11 Unit 2		General Surface Collection Grid 1 Row 11 Unit 5		General Surface Collection Grid 1 Row 12 Unit 1		General Surface Collection Grid 1 Row 12 Unit 2		General Surface Collection Grid 1 Row 12 Unit 5		General Surface Collection Grid 1 Row 13 Unit 5	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thin biface									1	1.5				
Total Chert Tools									1	1.5				
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core														
Bipolar core														
Primary flake	2	15.4							1	5.4				
Secondary flake	2	12.4	1	8			1	14.8	1	2				
Tertiary flake	5	12.4	2	0.8	3	5	1	5.5	4	6.8			1	0.8
Bifacial thin. flake	1	0.9												
Broken flake	1	3.6	4	4.7					4	14.3	2	0.8	3	2.4
Shatter	3	2.8	2	8.3					6	62.4	2	6	1	7
Blades														
Total Chert Debitage	14	47.5	9	21.8	3	5	2	20.3	16	90.9	4	6.8	5	10.2
MISC. MATERIAL														
Fire-cracked rock														
PAGE TOTAL	14	47.5	9	21.8	3	5	2	20.3	17	92.4	4	6.8	5	10.2
Utilized Flakes														

APPENDIX B
(Off-Site Collection Grid 1)

	General Surface Collection Grid 1 Row 14 Unit 5 N	W(g)	General Surface Collection Grid 1 Row 15 Unit 5 N	W(g)	General Surface Collection Grid 1 Row 16 Unit 5 N	W(g)	General Surface Collection Grid 1 Row 16 Unit 6 N	W(g)	General Surface Collection Grid 1 Row 17 Unit 5 N	W(g)	General Surface Collection Grid 1 Row 17 Unit 6 N	W(g)	General Surface Collection Grid 1 Row 18 Unit 5 N	W(g)
CHERT TOOLS														
Rough biface														
Thin biface	1	9.1												
Total Chert Tools	1	9.1												
CHERT DEBITAGE														
Plano-convex core	1	76.7												
Multidirectional core														
Bipolar core							1	81.4						
Primary flake					1	7.2			3	46.4				
Secondary flake									2	12.3			1	6.8
Tertiary flake	2	4			1	1.2					2	2	2	0.9
Bifacial thin. flake														
Broken flake	2	0.4			3	5.6			1	0.1			3	15.7
Shatter	3	2.2	2	8	3	223			1	0.5	2	36.6	3	72.8
Blades														
Total Chert Debitage	8	83.3	2	8	8	237	1	81.4	7	59.3	4	38.6	9	96.2
MISC. MATERIAL														
Fire-cracked rock														
PAGE TOTAL	9	92.4	2	8	8	237	1	81.4	7	59.3	4	38.6	9	96.2
Utilized Flakes														

APPENDIX B
(Off-Site Collection Grid 1)

	General Surface Collection Grid 1 Row 18 Unit 6		General Surface Collection Grid 1 Row 19 Unit 5		General Surface Collection Grid 1 Row 19 Unit 6		General Surface Collection Grid 1 Row 20 Unit 5		General Surface Collection Grid 1 Row 20 Unit 6		General Surface Collection Grid 1 Row 21 Unit 5		General Surface Collection Grid 1 Row 21 Unit 6	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thin biface														
Total Chert Tools														
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core														
Bipolar core														
Primary flake														
Secondary flake					1	2.7								
Tertiary flake	1	2.8	2	2.1			2	8.7			2	1.1		
Bifacial thin. flake														
Broken flake			1	1.4	2	1.5			1	2.6	1	7.2	3	1.5
Shatter	1	111.7			3	41.2	1	6	1	2	1	7.5	1	0.9
Blades														
Total Chert Debitage	2	114.5	3	3.5	6	45.4	3	14.7	2	4.6	4	15.8	4	2.4
MISC. MATERIAL														
Fire-cracked rock														
PAGE TOTAL	2	114.5	3	3.5	6	45.4	3	14.7	2	4.6	4	15.8	4	2.4
Utilized Flakes														

APPENDIX B
(Off-Site Collection Grid 1)

	General Surface Collection Grid 1 Row 22 Unit 5		General Surface Collection Grid 1 Row 22 Unit 6		General Surface Collection Grid 1 Row 23 Unit 1		General Surface Collection Grid 1 Row 23 Unit 2		General Surface Collection Grid 1 Row 23 Unit 5		General Surface Collection Grid 1 Row 23 Unit 6		General Surface Collection Grid 1 Row 24 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thin biface					1	0.9								
Total Chert Tools					1	0.9								
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core														
Bipolar core														
Primary flake													1	27.1
Secondary flake							1	0.9			1	1.2		
Tertiary flake					3	3.7	4	18.2	1	1.9			2	4.3
Bifacial thin. flake														
Broken flake	1	0.2			2	25.7	7	5.7	3	6.2	1	0.6		
Shatter			3	74.5	3	19.4	10	38.9	2	5.1			5	93.7
Blades														
Total Chert Debitage	1	0.2	3	74.5	8	48.8	22	63.7	6	13.2	2	1.8	8	125.1
MISC. MATERIAL														
Fire-cracked rock														
PAGE TOTAL	1	0.2	3	74.5	9	49.7	22	63.7	6	13.2	2	1.8	8	125.1
Utilized Flakes														

APPENDIX B
(Off-Site Collection Grid 1)

	General Surface Collection Grid 1 Row 24 Unit 2		General Surface Collection Grid 1 Row 24 Unit 6		General Surface Collection Grid 1 Row 25 Unit 1		General Surface Collection Grid 1 Row 25 Unit 2		General Surface Collection Grid 1 Row 26 Unit 1		General Surface Collection Grid 1 Row 26 Unit 2		General Surface Collection Grid 1 Row 26 Unit 5	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thin biface	1	3.8					1	3.9						
Total Chert Tools	1	3.8					1	3.9						
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core														
Bipolar core														
Primary flake											2	15.4		
Secondary flake	1	18.3							2	49.3	3	12	1	9.2
Tertiary flake	6	3.3	1	0.4			2	1.6	3	6.7	4	5.2		
Bifacial thin. flake											1	0.2		
Broken flake	12	14.2	1	33.5	1	15.8	1	1.3	3	3.8	9	18.5	2	1.8
Shatter	14	209.9	1	7.7	3	5.8	4	427.1	9	478.3	37	1343	1	61.3
Blades														
Total Chert Debitage	33	245.7	3	41.6	4	21.6	7	430	17	538.1	56	1394.3	4	72.3
MISC. MATERIAL														
Fire-cracked rock									2	274.1				
PAGE TOTAL	34	249.5	3	41.6	4	21.6	8	433.9	19	812.2	56	1394.3	4	72.3
Utilized Flakes									1					

APPENDIX B
(Off-Site Collection Grid 1)

	General Surface Collection Grid 1 Row 26 Unit 6		General Surface Collection Grid 1 Row 27 Unit 1		General Surface Collection Grid 1 Row 27 Unit 5		General Surface Collection Grid 1 Row 27 Unit 6		General Surface Collection Grid 1 Row 28 Unit 1		General Surface Collection Grid 1 Row 28 Unit 2		General Surface Collection Grid 1 Row 28 Unit 6	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface											1	117.7		
Thin biface			1	5.4									1	2.5
Total Chert Tools			1	5.4							1	117.7	1	2.5
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core											1	98.8		
Bipolar core														
Primary flake			1	13.7					1	2.5	3	20.8		
Secondary flake			2	16					1	3.1	1	0.9	1	14.1
Tertiary flake			6	52.8							4	14.2		
Bifacial thin. flake														
Broken flake			12	16.4					5	9.1	24	24	2	2.8
Shatter	3	3.5	23	1339.5	1	2.4	1	22.6	5	3.2	17	224.5	2	148.8
Blades														
Total Chert Debitage	3	3.5	44	1438.4	1	2.4	1	22.6	12	17.9	50	383.2	5	165.7
MISC. MATERIAL														
Fire-cracked rock			2	45.7										
PAGE TOTAL	3	3.5	47	1489.5	1	2.4	1	22.6	12	17.9	51	500.9	6	168.2
Utilized Flakes														

APPENDIX B
(Off-Site Collection Grid 1)

	General Surface Collection Grid 1 Row 51	Unit 1	General Surface Collection Grid 1 Row 51	Unit 2	General Surface Collection Grid 1 Row 51	Unit 7	General Surface Collection Grid 1 Row 52	Unit 1	General Surface Collection Grid 1 Row 52	Unit 2	General Surface Collection Grid 1 Row 53	Unit 1	General Surface Collection Grid 1 Row 53	Unit 2
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thin biface														
Total Chert Tools														
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core														
Bipolar core														
Primary flake														
Secondary flake	2	32.1							1	18.5				
Tertiary flake													1	68
Bifacial thin. flake														
Broken flake	10	9.6	4	1.7			1	1.1	2	3.8	7	6.2	12	10.5
Shatter	4	22	7	22.3	3	31.9	5	142.7	1	7.9	4	61.1	10	119.8
Blades													1	54.9
Total Chert Debitage	16	63.7	11	24	3	31.9	6	143.8	4	30.2	11	67.3	24	253.2
MISC. MATERIAL														
Fire-cracked rock														
PAGE TOTAL	16	63.7	11	24	3	31.9	6	143.8	4	30.2	11	67.3	24	253.2
Utilized Flakes														

APPENDIX B
(Off-Site Collection Grid 1)

	General Surface Collection Grid 1 Row 53 Unit 3		General Surface Collection Grid 1 Row 53 Unit 4		General Surface Collection Grid 1 Row 53 Unit 5		General Surface Collection Grid 1 Row 53 Unit 6	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS								
Rough biface								
Thin biface								
Total Chert Tools								
CHERT DEBITAGE								
Plano-convex core								
Multidirectional core								
Bipolar core								
Primary flake								
Secondary flake								
Tertiary flake	2	6.5						
Bifacial thin. flake								
Broken flake	3	2.8	7	6	4	1.7		
Shatter	7	106.5					1	40
Blades								
Total Chert Debitage	12	115.8	7	6	4	1.7	1	40
MISC. MATERIAL								
Fire-cracked rock								
PAGE TOTAL	12	115.8	7	6	4	1.7	1	40
Utilized Flakes								

APPENDIX B
(Off-Site Collection Grid 2)

	General Surface Collection Grid 2 Row 1		General Surface Collection Grid 2 Row 2		General Surface Collection Grid 2 Row 3		General Surface Collection Grid 2 Row 4		General Surface Collection Grid 2 Row 5		General Surface Collection Grid 2 Row 6		General Surface Collection Grid 2 Row 7	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Thin biface														
Projectile point/Knife														
Total Chert Tools														
CHERT DEBITAGE														
Multidirectional core														
Tested core														
Core fragment	1	31.7									1	76.7		
Primary flake									1	76.2	1	16.9	1	44.1
Secondary flake	2	3.5							1	3.4			2	16
Tertiary flake	1	0.1					5	1.3	1	0.6			1	0.4
Bifacial thin. flake														
Broken flake														
Shatter					1	2.8	1	4.5	1	35.4	2	22.8	1	18.8
Total Chert Debitage	4	35.3			1	2.8	6	5.8	4	115.6	4	116.4	5	79.3
NONCHERT ARTIFACTS														
Hammerstone														
MISC. MATERIAL														
Unmodified rock			1	1.5										
PAGE TOTAL	4	35.3	1	1.5	1	2.8	6	5.8	4	115.6	4	116.4	5	79.3

APPENDIX B
(Off-Site Collection Grid 2)

	General Surface Collection Grid 2 Row 8		General Surface Collection Grid 2 Row 9		General Surface Collection Grid 2 Row 11		General Surface Collection Grid 2 Row 12		General Surface Collection Grid 2 Row 13		General Surface Collection Grid 2 Row 14		General Surface Collection Grid 2 Row 15	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Thin biface														
Projectile point/Knife											1	3.2		
Total Chert Tools											1	3.2		
CHERT DEBITAGE														
Multidirectional core														
Tested core													2	96.8
Core fragment											1	19.6		
Primary flake	1	23.8							1	27.6			1	27.6
Secondary flake	1	0.6					2	0.9					3	38.7
Tertiary flake	1	7.1	1	0.2	1	0.1	2	3.4			1	2.2	2	1.7
Bifacial thin. flake			1	7.1										
Broken flake			1	0.4										
Shatter	2	31.6	2	15.7			3	24.2			1	32.9	1	12.5
Total Chert Debitage	5	63.1	5	23.4	1	0.1	7	28.5	1	27.6	3	54.7	9	177.3
NONCHERT ARTIFACTS														
Hammerstone														
MISC. MATERIAL														
Unmodified rock							1	1.8						
PAGE TOTAL	5	63.1	5	23.4	1	0.1	8	30.3	1	27.6	4	57.9	9	177.3

APPENDIX B
(Off-Site Collection Grid 2)

	General Surface Collection Grid 2 Row 16		General Surface Collection Grid 2 Row 17		General Surface Collection Grid 2 Row 18	
	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS						
Thin biface	1	18.4				
Projectile point/Knife						
Total Chert Tools	1	18.4				
CHERT DEBITAGE						
Multidirectional core	1	100.3				
Tested core						
Core fragment						
Primary flake	2	15.6	1	1.2	2	19.7
Secondary flake	2	10.2	3	59.4	4	29.7
Tertiary flake	5	30.2	4	8.1	8	29.3
Bifacial thin. flake						
Broken flake						
Shatter			3	50.1		
Total Chert Debitage	10	156.3	11	118.8	14	78.7
NONCHERT ARTIFACTS						
Hammerstone					1	276.3
MISC. MATERIAL						
Unmodified rock						
PAGE TOTAL	11	174.7	11	118.8	15	355

APPENDIX B
(Off-Site Collection Grid 3)

	General Surface Collection Grid 3 Row 1 Unit 1		General Surface Collection Grid 3 Row 2 Unit 1		General Surface Collection Grid 3 Row 3 Unit 1		General Surface Collection Grid 3 Row 4 Unit 1		General Surface Collection Grid 3 Row 5 Unit 1		General Surface Collection Grid 3 Row 6 Unit 1		General Surface Collection Grid 3 Row 7 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface	1	26												
Thick biface			1	177.4										
Thin biface	1	7.6					1	23.4						
Wedge														
Total Chert Tools	2	33.6	1	177.4			1	23.4						
CHERT DEBITAGE														
Multidirectional core	2	221.4			1	83.6								
Bipolar core														
Primary flake					3	146.8	1	1.6			2	0.7		
Secondary flake	2	10	2	5.6			2	17.4			2	9.3		
Tertiary flake	1	0.6	2	8.2	1	0.3	1	0.3	6	11.3	1	4.9		
Broken flake	6	39.9	3	0.4	5	80.8	5	2.9	4	5.6	3	8.8		
Shatter	3	50.9	1	1.6	3	46.2	6	102.6	3	75.7	3	102.3	2	1.1
Total Chert Debitage	14	322.8	8	15.8	13	357.7	15	124.8	13	92.6	11	126	2	1.1
NONCHERT ARTIFACTS														
Hammerstone														
MISC. MATERIAL														
Limestone					1	0.7					1	8.8		
Fire-cracked rock			1	1										
Total Misc. Material			1	1	1	0.7					1	8.8		
PAGE TOTAL	16	356.4	10	194.2	14	358.4	16	148.2	13	92.6	12	134.8	2	1.1
Utilized Flakes			1		2		1							

APPENDIX B
(Off-Site Collection Grid 3)

	General Surface Collection Grid 3 Row 8 Unit 1		General Surface Collection Grid 3 Row 9 Unit 1		General Surface Collection Grid 3 Row 10 Unit 1		General Surface Collection Grid 3 Row 11 Unit 1		General Surface Collection Grid 3 Row 12 Unit 1		General Surface Collection Grid 3 Row 13 Unit 1		General Surface Collection Grid 3 Row 14 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface					1	4							1	82.6
Thin biface											1	11.1		
Wedge														
Total Chert Tools					1	4					1	11.1	1	82.6
CHERT DEBITAGE														
Multidirectional core														
Bipolar core														
Primary flake	1	4.2												
Secondary flake							2	41.3	2	6.6	3	25.4		
Tertiary flake	2	0.3	2	1.9	2	1.2	3	12.9	4	6.2	1	2.1		
Broken flake	2	0.9	3	1.9	3	4.5	5	7.6	8	36.3	1	3.5	1	0.1
Shatter			3	3.3	1	1.6	3	16	2	16.8	1	5.4		
Total Chert Debitage	5	5.4	8	7.1	6	7.3	13	77.8	16	65.9	6	36.4	1	0.1
NONCHERT ARTIFACTS														
Hammerstone														
MISC. MATERIAL														
Limestone														
Fire-cracked rock	1	12.6												
Total Misc. Material	1	12.6												
PAGE TOTAL	6	18	8	7.1	7	11.3	13	77.8	16	65.9	7	47.5	2	82.7
Utilized Flakes							2		2					

APPENDIX B
(Off-Site Collection Grid 3)

	General Surface Collection Grid 3 Row 15 Unit 1		General Surface Collection Grid 3 Row 16 Unit 1		General Surface Collection Grid 3 Row 17 Unit 1		General Surface Collection Grid 3 Row 18 Unit 1		General Surface Collection Grid 3 Outside grids E 0-30m		General Surface Collection Grid 3 Outside grids 4,5,6		General Surface Collection Grid 3 Outside grids 7,8,9	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface					1	128.2			1	126.1	1	181.5		
Thin biface									1	4.9				
Wedge									1	93.7				
Total Chert Tools					1	128.2			3	224.7	1	181.5		
CHERT DEBITAGE														
Multidirectional core														
Bipolar core									1	70.7				
Primary flake			1	93.6	1	109.5			3	36.1	3	43.7		
Secondary flake	1	37.5			1	1.5	1	5.2	4	71.7	4	117.8	1	10.7
Tertiary flake	1	8.8			3	4.3	3	9.5	9	16	5	23.7	6	8.2
Broken flake	3	19.7			6	4	1	1.1	5	6.4	13	19.4	7	67.8
Shatter	1	4.5			1	51.4	1	0.9	16	497.7	13	364.3	6	144.8
Total Chert Debitage	6	70.5	1	93.6	12	170.7	6	16.7	38	698.6	38	568.9	20	231.5
NONCHERT ARTIFACTS														
Hammerstone									1	139.5				
MISC. MATERIAL														
Limestone														
Fire-cracked rock											2	57.2	1	232.5
Total Misc. Material											2	57.2	1	232.5
PAGE TOTAL	6	70.5	1	93.6	13	298.9	6	16.7	42	1062.8	41	807.6	21	464
Utilized Flakes					1				3		7		1	

APPENDIX B
(Off-Site Collection Grid 3)

	General Surface Collection Grid 3 Outside grids 10,11,12		General Surface Collection Grid 3 Outside grids 13,14,15	
	N	W(g)	N	W(g)
CHERT TOOLS				
Rough biface				
Thick biface				
Thin biface			1	29.4
Wedge				
Total Chert Tools			1	29.4
CHERT DEBITAGE				
Multidirectional core	1	53.7		
Bipolar core			1	45.7
Primary flake	2	23.8	2	28.3
Secondary flake				
Tertiary flake	8	24.7	3	3.1
Broken flake	5	13.2	3	2.7
Shatter	5	176.8	2	48.9
Total Chert Debitage	21	292.2	11	128.7
NONCHERT ARTIFACTS				
Hammerstone				
MISC. MATERIAL				
Limestone				
Fire-cracked rock				
Total Misc. Material				
PAGE TOTAL	21	292.2	12	158.1
Utilized Flakes	2			

APPENDIX B
(Off-Site Collection Grid 4)

	General Surface Collection Grid 4 Row 1 Unit 1		General Surface Collection Grid 4 Row 2 Unit 1		General Surface Collection Grid 4 Row 2 Unit 2		General Surface Collection Grid 4 Row 3 Unit 1		General Surface Collection Grid 4 Row 3 Unit 2		General Surface Collection Grid 4 Row 4 Unit 1		General Surface Collection Grid 4 Row 4 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Thin biface														
CHERT DEBITAGE														
Plano-convex core													1	113.4
Multidirectional core														
Secondary flake			1	1.7			1	11.1						
Tertiary flake			1	2	1	10	3	55.7			1	4		
Broken flake	2	2.2	2	3.5	1	3.4	4	17.7	1	3.9	4	1.7	1	0.7
Shatter			2	2.9			5	342.9	1	14.9	3	37.9	1	84.7
Blades														
Total Chert Debitage	2	2.2	6	10.1	2	13.4	13	427.4	2	18.8	8	43.6	3	198.8
MISC. MATERIAL														
Unmodified rock														
PAGE TOTAL	2	2.2	6	10.1	2	13.4	13	427.4	2	18.8	8	43.6	3	198.8

APPENDIX B
(Off-Site Collection Grid 4)

	General Surface Collection Grid 4 Row 5 Unit 1		General Surface Collection Grid 4 Row 5 Unit 2		General Surface Collection Grid 4 Row 6 Unit 1		General Surface Collection Grid 4 Row 6 Unit 2		General Surface Collection Grid 4 Row 7 Unit 2		General Surface Collection Grid 4 Row 8 Unit 1		General Surface Collection Grid 4 Row 9 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Thin biface					1	2.4								
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core														
Secondary flake													1	3.5
Tertiary flake							1	5.2						
Broken flake	1	0.4	1	1.6	2	1.2			1	0.5			1	0.5
Shatter	2	346.3			1	9.9					7	103.9	1	68.7
Blades											1	24.2		
Total Chert Debitage	3	346.7	1	1.6	3	11.1	1	5.2	1	0.5	8	128.1	3	72.7
MISC. MATERIAL														
Unmodified rock														
PAGE TOTAL	3	346.7	1	1.6	4	13.5	1	5.2	1	0.5	8	128.1	3	72.7

APPENDIX B
(Off-Site Collection Grid 4)

	General Surface Collection Grid 4 Row 10 Unit 2		General Surface Collection Grid 4 Row 11 Unit 2		General Surface Collection Grid 4 Row 12 Unit 2		General Surface Collection Grid 4 Row 13 Unit 1		General Surface Collection Grid 4 Row 14 Unit 1		General Surface Collection Grid 4 Row 15 Unit 1		General Surface Collection Grid 4 Row 16 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Thin biface														
CHERT DEBITAGE														
Plano-convex core													1	62.6
Multidirectional core			1	147.3										
Secondary flake	2	14.2												
Tertiary flake									1	0.2			1	0.4
Broken flake	1	0.1					1	0.1	1	3	1	0.7	1	0.7
Shatter	1	47.5												
Blades														
Total Chert Debitage	4	61.8	1	147.3			1	0.1	2	3.2	1	0.7	3	63.7
MISC. MATERIAL														
Unmodified rock					1	4.9								
PAGE TOTAL	4	61.8	1	147.3	1	4.9	1	0.1	2	3.2	1	0.7	3	63.7

APPENDIX B
(Off-Site Collection Grid 4)

	General Surface Collection Grid 4 Row 17 Unit 1		General Surface Collection Grid 4 Row 17 Unit 2		General Surface Collection Grid 4 Row 18 Unit 1		General Surface Collection Grid 4 Row 18 Unit 2		General Surface Collection Grid 4 Row 19 Unit 1		General Surface Collection Grid 4 Row 19 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS												
Thin biface												
CHERT DEBITAGE												
Plano-convex core												
Multidirectional core												
Secondary flake			1	54	1	2.6						
Tertiary flake	1	8.5			2	4.6						
Broken flake	3	5.7	1	0.6	4	2.7	2	1.1	6	6.4	2	8.2
Shatter	1	155.2	1	68	4	3.9	1	16.1	4	324	3	65.2
Blades												
Total Chert Debitage	5	169.4	3	122.6	11	13.8	3	17.2	10	330.4	5	73.4
MISC. MATERIAL												
Unmodified rock												
PAGE TOTAL	5	169.4	3	122.6	11	13.8	3	17.2	10	330.4	5	73.4

APPENDIX B
(Off-Site Collection Grid 5)

	General Surface Collection Grid 5 Row 1 Unit 1		General Surface Collection Grid 5 Row 1 Unit 2		General Surface Collection Grid 5 Row 2 Unit 1		General Surface Collection Grid 5 Row 2 Unit 2		General Surface Collection Grid 5 Row 3 Unit 1		General Surface Collection Grid 5 Row 3 Unit 2		General Surface Collection Grid 5 Row 4 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Projectile point/Knife														
End scraper														
Retouched flake														
Perforating tool														
Total Chert Tools														
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core														
Core fragment														
Tested core	1	140.7												
Primary flake			1	12.6										
Secondary flake	1	0.9	1	8.6	1	0.3								
Tertiary flake					1	0.1	2	4.4	3	3.0			3	4.2
Bifacial thin. flake														
Broken flake					1	6.4					1	5.1		
Shatter					1	2.2							1	4.9
Total Chert Debitage	2	141.6	2	21.2	4	9.0	2	4.4	3	3.0	1	5.1	4	9.1
NONCHERT ARTIFACTS														
Hammerstone														
MISC. MATERIAL														
Unmodified rock							1	39.3	1	120.0			1	564.3
PAGE TOTAL	2	141.6	2	21.2	4	9.0	3	43.7	4	123.0	1	5.1	5	573.4
Utilized Flakes														
Historic material														

APPENDIX B
(Off-Site Collection Grid 5)

	General Surface Collection Grid 5 Row 4 Unit 2		General Surface Collection Grid 5 Row 5 Unit 1		General Surface Collection Grid 5 Row 5 Unit 2		General Surface Collection Grid 5 Row 6 Unit 1		General Surface Collection Grid 5 Row 6 Unit 2		General Surface Collection Grid 5 Row 7 Unit 1		General Surface Collection Grid 5 Row 7 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Projectile point/Knife														
End scraper			1	16.3										
Retouched flake														
Perforating tool														
Total Chert Tools			1	16.3										
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core														
Core fragment									1	74.7				
Tested core			2	72.4										
Primary flake			1	2.0										
Secondary flake			3	10.7	2	2.6	3	76.6						
Tertiary flake	2	3.2	1	0.4	2	3.3	1	8.0	2	6.3	1	1.8	1	7.2
Bifacial thin. flake														
Broken flake														
Shatter			1	13.3										
Total Chert Debitage	2	3.2	8	98.8	4	5.9	4	84.6	3	81.0	1	1.8	1	7.2
NONCHERT ARTIFACTS														
Hammerstone														
MISC. MATERIAL														
Unmodified rock			1	49.4	2	322.7	1	130.0	1	125.4			1	2.6
PAGE TOTAL	2	3.2	10	164.5	6	328.6	5	214.6	4	206.4	1	1.8	2	9.8
Utilized Flakes							1							
Historic material														

APPENDIX B
(Off-Site Collection Grid 5)

	General Surface Collection Grid 5 Row 8 Unit 1		General Surface Collection Grid 5 Row 8 Unit 2		General Surface Collection Grid 5 Row 9 Unit 1		General Surface Collection Grid 5 Row 9 Unit 2		General Surface Collection Grid 5 Row 10 Unit 1		General Surface Collection Grid 5 Row 10 Unit 2		General Surface Collection Grid 5 Row 12 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Projectile point/Knife														
End scraper														
Retouched flake														
Perforating tool														
Total Chert Tools														
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core														
Core fragment														
Tested core														
Primary flake			1	1.0										
Secondary flake	2	42.3	1	6.1			1	1.3						
Tertiary flake	3	9.2	3	3.8	1	0.8			2	9.8	2	8.1	1	3.5
Bifacial thin. flake							1	2.9						
Broken flake	1	2.5												
Shatter			2	2.4							1	20.0		
Total Chert Debitage	6	54.0	7	13.3	1	0.8	2	4.2	2	9.8	3	28.1	1	3.5
NONCHERT ARTIFACTS														
Hammerstone	1	58.9												
MISC. MATERIAL														
Unmodified rock	1	3.0												
PAGE TOTAL	8	115.9	7	13.3	1	0.8	2	4.2	2	9.8	3	28.1	1	3.5
Utilized Flakes									1					
Historic material	1	11.6												

APPENDIX B
(Off-Site Collection Grid 5)

	General Surface Collection Grid 5 Row 13 Unit 1		General Surface Collection Grid 5 Row 13 Unit 2		General Surface Collection Grid 5 Row 14 Unit 1		General Surface Collection Grid 5 Row 15 Unit 1		General Surface Collection Grid 5 Row 16 Unit 1		General Surface Collection Grid 5 Row 19 Unit 1		General Surface Collection Grid 5 Row 20 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface													1	12.5
Projectile point/Knife														
End scraper														
Retouched flake														
Perforating tool											1	0.2		
Total Chert Tools											1	0.2	1	12.5
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core														
Core fragment					1	47.4								
Tested core														
Primary flake			1	7.3			1	0.6						
Secondary flake														
Tertiary flake	1	14.0			1	0.9	1	1.3						
Bifacial thin. flake														
Broken flake														
Shatter							1	11.0	2	13.4			1	1.9
Total Chert Debitage	1	14.0	1	7.3	2	48.3	3	12.9	2	13.4			1	1.9
NONCHERT ARTIFACTS														
Hammerstone														
MISC. MATERIAL														
Unmodified rock														
PAGE TOTAL	1	14.0	1	7.3	2	48.3	3	12.9	2	13.4	1	0.2	2	14.4
Utilized Flakes			1											
Historic material														

APPENDIX B
(Off-Site Collection Grid 5)

	General Surface Collection Grid 5 Row 21 Unit 1		General Surface Collection Grid 5 Row 22 Unit 1		General Surface Collection Grid 5 Row 23 Unit 2		General Surface Collection Grid 5 Row 24 Unit 2		General Surface Collection Grid 5 Row 25 Unit 2		General Surface Collection Grid 5 Row 26 Unit 2		General Surface Collection Grid 5 Row 27 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Projectile point/Knife														
End scraper														
Retouched flake														
Perforating tool														
Total Chert Tools														
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core														
Core fragment									1	145.5			1	44.4
Tested core														
Primary flake														
Secondary flake														
Tertiary flake	1	0.3											1	0.8
Bifacial thin. flake			1	3.4										
Broken flake			1	10.0										
Shatter											1	0.9	1	4.7
Total Chert Debitage	1	0.3	2	13.4					1	145.5	1	0.9	3	49.9
NONCHERT ARTIFACTS														
Hammerstone														
MISC. MATERIAL														
Unmodified rock													1	32.4
PAGE TOTAL	1	0.3	2	13.4					1	145.5	1	0.9	4	82.3
Utilized Flakes														
Historic material					1		1							

APPENDIX B
(Off-Site Collection Grid 5)

	General Surface Collection Grid 5 Row 27 Unit 2		General Surface Collection Grid 5 Row 28 Unit 1		General Surface Collection Grid 5 Row 28 Unit 2		General Surface Collection Grid 5 Row 29 Unit 1		General Surface Collection Grid 5 Row 29 Unit 2		General Surface Collection Grid 5 Row 30 Unit 1		General Surface Collection Grid 5 Row 30 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface			2	308.5										
Thick biface														
Projectile point/Knife			1	15.9										
End scraper														
Retouched flake														
Perforating tool														
Total Chert Tools			3	324.4										
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core											1	124.8		
Core fragment														
Tested core			2	307.3										
Primary flake	1	9.3	1	6.9			1	6.3						
Secondary flake			3	14.8	1	4.8	6	20.8	2	21.4	2	32.2		
Tertiary flake			7	62.4	1	6.0	3	2.8			3	2.1	3	5.1
Bifacial thin. flake			1	0.1			4	7.1	2	4.1			1	2.6
Broken flake	1	0.7	1	2.6					1	3.9	3	2.6	1	0.6
Shatter	1	13.0	3	65.0	1	1.7	4	11.3			1	0.6	1	5.0
Total Chert Debitage	3	23.0	18	459.1	3	12.5	18	48.3	5	29.4	10	162.3	6	13.3
NONCHERT ARTIFACTS														
Hammerstone														
MISC. MATERIAL														
Unmodified rock			1	46.4			2	4.1			1	97.9		
PAGE TOTAL	3	23.0	22	829.9	3	12.5	20	52.4	5	29.4	11	260.2	6	13.3
Utilized Flakes							1							
Historic material														

APPENDIX B
(Off-Site Collection Grid 5)

	General Surface Collection Grid 5 Row 31 Unit 1		General Surface Collection Grid 5 Row 31 Unit 2		General Surface Collection Grid 5 Row 32 Unit 1		General Surface Collection Grid 5 Row 32 Unit 2		General Surface Collection Grid 5 Row 33 Unit 1		General Surface Collection Grid 5 Row 33 Unit 2		General Surface Collection Grid 5 Row 34 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Projectile point/Knife	1	3.3												
End scraper														
Retouched flake					1	10.9								
Perforating tool														
Total Chert Tools	1	3.3			1	10.9								
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core														
Core fragment														
Tested core														
Primary flake			1	35.1										
Secondary flake	2	13.7			2	5.9			1	33.2			1	5.3
Tertiary flake	3	9.0	1	0.5	3	2.9	1	0.3						
Bifacial thin. flake					1	0.2								
Broken flake	1	0.3												
Shatter	1	5.6	2	122.7	1	5.5			1	20.1	1	90.3		
Total Chert Debitage	7	28.6	4	158.3	7	14.5	1	0.3	2	53.3	1	90.3	1	5.3
NONCHERT ARTIFACTS														
Hammerstone							1	304.0						
MISC. MATERIAL														
Unmodified rock														
PAGE TOTAL	8	31.9	4	158.3	8	25.4	2	304.3	2	53.3	1	90.3	1	5.3
Utilized Flakes														
Historic material														

APPENDIX B
(Off-Site Collection Grid 5)

	General Surface Collection Grid 5 Row 35 Unit 1		General Surface Collection Grid 5 Row 35 Unit 2		General Surface Collection Grid 5 Row 36 Unit 1		General Surface Collection Grid 5 Row 36 Unit 2		General Surface Collection Grid 5 Row 37 Unit 1		General Surface Collection Grid 5 Row 37 Unit 2		General Surface Collection Grid 5 Row 38 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Projectile point/Knife														
End scraper														
Retouched flake														
Perforating tool														
Total Chert Tools														
CHERT DEBITAGE														
Plano-convex core														
Multidirectional core														
Core fragment														
Tested core							1	75.0						
Primary flake			1	29.5									1	105.7
Secondary flake	1	2.1			1	4.8					1	0.6		
Tertiary flake					1	1.9					1	3.2	4	25.5
Bifacial thin. flake									1	1.5				
Broken flake							1	0.1	2	2.0				
Shatter	1	26.5									1	0.3	1	3.5
Total Chert Debitage	2	28.6	1	29.5	2	6.7	2	75.1	3	3.5	3	4.1	6	134.7
NONCHERT ARTIFACTS														
Hammerstone	1	204.3												
MISC. MATERIAL														
Unmodified rock														
PAGE TOTAL	3	232.9	1	29.5	2	6.7	2	75.1	3	3.5	3	4.1	6	134.7
Utilized Flakes														
Historic material														

APPENDIX B
(Off-Site Collection Grid 5)

	General Surface Collection Grid 5 Row 38 Unit 2		General Surface Collection Grid 5 Row 39 Unit 1		General Surface Collection Grid 5 Row 40 Unit 1		General Surface Collection Grid 5 Row 40 Unit 2		General Surface Collection Grid 5 Row 41 Unit 1		General Surface Collection Grid 5 Row 42 Unit 1		General Surface Collection Grid 5 Row 43 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Projectile point/Knife														
End scraper							1	7.9						
Retouched flake														
Perforating tool														
Total Chert Tools							1	7.9						
CHERT DEBITAGE														
Plano-convex core							1	302.4						
Multidirectional core														
Core fragment									1	80.7				
Tested core														
Primary flake			3	46.9	1	9.2								
Secondary flake			6	65.2	1	1.2							1	12.3
Tertiary flake	1	0.5			4	7.3					1	0.7	1	0.4
Bifacial thin. flake														
Broken flake			2	9.2										
Shatter			7	25.6	2	3.5	1	2.7	3	5.3			1	0.4
Total Chert Debitage	1	0.5	18	146.9	8	21.2	2	305.1	4	86.0	1	0.7	3	13.1
NONCHERT ARTIFACTS														
Hammerstone														
MISC. MATERIAL														
Unmodified rock														
PAGE TOTAL	1	0.5	18	146.9	8	21.2	3	313.0	4	86.0	1	0.7	3	13.1
Utilized Flakes														
Historic material														

APPENDIX B
(Off-Site Collection Grid 6)

	General Surface Collection Grid 6 Row 1 Unit 1		General Surface Collection Grid 6 Row 2 Unit 1		General Surface Collection Grid 6 Row 4 Unit 2		General Surface Collection Grid 6 Row 5 Unit 1		General Surface Collection Grid 6 Row 6 Unit 1		General Surface Collection Grid 6 Row 7 Unit 2		General Surface Collection Grid 6 Row 8 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface							1	18.2						
Thin biface														
Projectile point/Knife														
Total Chert Tools							1	18.2						
CHERT DEBITAGE														
Primary flake											1	23.5		
Secondary flake													1	3
Tertiary flake					1	3								
Broken flake	1	18.2												
Shatter			1	3.3							1	0.8		
Total Chert Debitage	1	18.2	1	3.3	1	3					2	24.3	1	3
NONCHERT ARTIFACTS														
Hammerstone														
MISC. MATERIAL														
Unmodified rock									1	96.2				
PAGE TOTALS	1	18.2	1	3.3	1	3	1	18.2	1	96.2	2	24.3	1	3

APPENDIX B
(Off-Site Collection Grid 6)

	General Surface Collection Grid 6 Row 16 Unit 2		General Surface Collection Grid 6 Row 17 Unit 1		General Surface Collection Grid 6 Row 18 Unit 2		General Surface Collection Grid 6 Row 19 Unit 1		General Surface Collection Grid 6 Row 19 Unit 2		General Surface Collection Grid 6 Row 20 Unit 1		General Surface Collection Grid 6 Row 20 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface							1	71.9						
Thin biface														
Projectile point/Knife														
Total Chert Tools							1	71.9						
CHERT DEBITAGE														
Primary flake													1	110.3
Secondary flake									1	1.9				
Tertiary flake			1	5.1							1	0.3		
Broken flake														
Shatter	1	18.2												
Total Chert Debitage	1	18.2	1	5.1					1	1.9	1	0.3	1	110.3
NONCHERT ARTIFACTS														
Hammerstone														
MISC. MATERIAL														
Unmodified rock					1	101.4								
PAGE TOTALS	1	18.2	1	5.1	1	101.4	1	71.9	1	1.9	1	0.3	1	110.3

APPENDIX B
(Off-Site Collection Grid 6)

	General Surface Collection Grid 6 Row 21 Unit 1		General Surface Collection Grid 6 Row 21 Unit 2		General Surface Collection Grid 6 Row 22 Unit 1		General Surface Collection Grid 6 Row 23 Unit 1		General Surface Collection Grid 6 Row 24 Unit 1		General Surface Collection Grid 6 Row 24 Unit 2		General Surface Collection Grid 6 Row 25 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface					1	76.1								
Thin biface														
Projectile point/Knife							1	4.2						
Total Chert Tools					1	76.1	1	4.2						
CHERT DEBITAGE														
Primary flake							1	3.8					1	63.9
Secondary flake	1	26.1	1	0.4			1	4					1	4.5
Tertiary flake			1	0.8			1	0.6	1	2.2			1	1.3
Broken flake			2	0.3										
Shatter											1	65.7	1	2.2
Total Chert Debitage	1	26.1	4	1.5			3	8.4	1	2.2	1	65.7	4	71.9
NONCHERT ARTIFACTS														
Hammerstone					1	80								
MISC. MATERIAL														
Unmodified rock					1	196.6								
PAGE TOTALS	1	26.1	4	1.5	3	352.7	4	12.6	1	2.2	1	65.7	4	71.9

APPENDIX B
(Off-Site Collection Grid 6)

	General Surface Collection Grid 6 Row 26 Unit 1		General Surface Collection Grid 6 Row 27 Unit 1		General Surface Collection Grid 6 Row 27 Unit 2		General Surface Collection Grid 6 Row 28 Unit 1		General Surface Collection Grid 6 Row 28 Unit 2		General Surface Collection Grid 6 Row 29 Unit 1		General Surface Collection Grid 6 Row 30 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thin biface											1	10		
Projectile point/Knife														
Total Chert Tools											1	10		
CHERT DEBITAGE														
Primary flake	1	1.1					3	48.9						
Secondary flake			2	16.9	1	0.4					1	1.3		
Tertiary flake	2	3.7			1	2.3	1	0.2	2	0.4				
Broken flake	1	20			1	1.3	1	0.1	4	12				
Shatter							2	56.3			2	2.9	2	15.4
Total Chert Debitage	4	24.8	2	16.9	3	4	7	105.5	6	12.4	3	4.2	2	15.4
NONCHERT ARTIFACTS														
Hammerstone														
MISC. MATERIAL														
Unmodified rock														
PAGE TOTALS	4	24.8	2	16.9	3	4	7	105.5	6	12.4	4	14.2	2	15.4

Appendix B
(Off-Site Collection Grid 8)

	General Surface Collection Grid 8 Row 1 Unit 1		General Surface Collection Grid 8 Row 2 Unit 1		General Surface Collection Grid 8 Row 3 Unit 1		General Surface Collection Grid 8 Row 4 Unit 1		General Surface Collection Grid 8 Row 5 Unit 1		General Surface Collection Grid 8 Row 6 Unit 1		General Surface Collection Grid 8 Row 7 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
End scraper									1	38				
Total Chert Tools									1	38				
CHERT DEBITAGE														
Plano-convex core														
Primary flake							1	7.3	1	23.1			2	18
Secondary flake														
Tertiary flake							2	10.1			3	11.9		
Broken flake	7	8.7	11	18.9	6	10.3			2	24.1	1	0.7	6	2.2
Shatter	2	86.9	15	49.3	2	308.1							6	16
Blades											1	8.2		
Total Chert Tools	9	95.6	26	68.2	8	318.4	3	17.4	3	47.2	5	20.8	14	36.2
MISC. MATERIAL														
Fire-cracked rock					1	61.9								
PAGE TOTAL	9	95.6	26	68.2	9	380.3	3	17.4	4	85.2	5	20.8	14	36.2
Utilized Flakes					1				1					

Appendix B
(Off-Site Collection Grid 8)

	General Surface Collection Grid 8 Row 8 Unit 1		General Surface Collection Grid 8 Row 9 Unit 1		General Surface Collection Grid 8 Row 10 Unit 1		General Surface Collection Grid 8 Row 11 Unit 1		General Surface Collection Grid 8 Row 12 Unit 1		General Surface Collection Grid 8 Row 13 Unit 1		General Surface Collection Grid 8 Row 14 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
End scraper														
Total Chert Tools														
CHERT DEBITAGE														
Plano-convex core			1	23.3										
Primary flake			1	15.2					1	3.2				
Secondary flake			1	6.7					1	6.6	1	10.5	1	7.5
Tertiary flake	5	17.2	1	5.8	3	36.1					1	0.9	1	9.9
Broken flake	3	47.9	11	23.8	8	6.5	3	1.6					6	8.5
Shatter	12	137.5	5	525.8							2	260.4	2	115.5
Blades	1	13.4									1	4.8	1	1.3
Total Chert Tools	21	216	20	600.6	11	42.6	3	1.6	2	9.8	5	276.6	11	142.7
MISC. MATERIAL														
Fire-cracked rock									1	4.3				
PAGE TOTAL	21	216	20	600.6	11	42.6	3	1.6	3	14.1	5	276.6	11	142.7
Utilized Flakes	1		2										1	

Appendix B
(Off-Site Collection Grid 8)

	General Surface Collection Grid 8 Row 15 Unit 1		General Surface Collection Grid 8 Row 16 Unit 1		General Surface Collection Grid 8 Row 17 Unit 1		General Surface Collection Grid 8 Row 19 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS								
Rough biface	2	106.2						
End scraper								
Total Chert Tools	2	106.2						
CHERT DEBITAGE								
Plano-convex core								
Primary flake	1	26.1						
Secondary flake	3	40.5	1	4.2	1	38		
Tertiary flake			1	2.6	1	2.9		
Broken flake	8	10	2	1.8	8	25.7	2	4.1
Shatter	5	70.7			1	18	3	86.3
Blades	3	31.9	1	77.5	1	3.1		
Total Chert Tools	20	179.2	5	86.1	12	87.7	5	90.4
MISC. MATERIAL								
Fire-cracked rock								
PAGE TOTAL	22	285.4	5	86.1	12	87.7	5	90.4
Utilized Flakes								

Appendix B
(Off-Site Collection Grid 9)

	General Surface Collection Grid 9 Row 1 Unit 1		General Surface Collection Grid 9 Row 1 Unit 2		General Surface Collection Grid 9 Row 2 Unit 1		General Surface Collection Grid 9 Row 2 Unit 2		General Surface Collection Grid 9 Row 3 Unit 1		General Surface Collection Grid 9 Row 3 Unit 2		General Surface Collection Grid 9 Row 4 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Thick biface														
Thin biface					1	6.2								
Projectile point/Knife														
Total Chert Tools					1	6.2								
CHERT DEBITAGE														
Multidirectional core														
Primary flake											1	8.2		
Secondary flake			1	22.9										
Tertiary flake									2	8				
Broken flake	2	36.6			2	4.4					2	3	1	0.9
Shatter	1	28	1	111.7	6	105.2	3	109.9	3	65.6	3	13.5		
Total Chert Debitage	3	64.6	2	134.6	8	109.6	3	109.9	5	73.6	6	24.7	1	0.9
NONCHERT ARTIFACTS														
Hammerstone					1	1032.2								
MISC. MATERIAL														
Fire-cracked rock														
PAGE TOTAL	3	64.6	2	134.6	10	1148	3	109.9	5	73.6	6	24.7	1	0.9
Utilized Flakes			1											

Appendix B
(Off-Site Collection Grid 9)

	General Surface Collection Grid 9 Row 4 Unit 2		General Surface Collection Grid 9 Row 5 Unit 1		General Surface Collection Grid 9 Row 5 Unit 2		General Surface Collection Grid 9 Row 6 Unit 1		General Surface Collection Grid 9 Row 6 Unit 2		General Surface Collection Grid 9 Row 7 Unit 1		General Surface Collection Grid 9 Row 7 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Thick biface														
Thin biface														
Projectile point/Knife	1	4.6			1	14.5								
Total Chert Tools	1	4.6			1	14.5								
CHERT DEBITAGE														
Multidirectional core									1	90.8			1	71.5
Primary flake														
Secondary flake											1	11.2		
Tertiary flake	1	5												
Broken flake	3	23.5	1	1.9	1	1.4								
Shatter	2	48.1	1	29.3			1	125	2	32.2				
Total Chert Debitage	6	76.6	2	31.2	1	1.4	1	125	3	123	1	11.2	1	71.5
NONCHERT ARTIFACTS														
Hammerstone														
MISC. MATERIAL														
Fire-cracked rock									2	53.5			1	3.2
PAGE TOTAL	7	81.2	2	31.2	2	15.9	1	125	5	176.5	1	11.2	2	74.7
Utilized Flakes	1													

Appendix B
(Off-Site Collection Grid 9)

	General Surface Collection Grid 9 Row 8 Unit 2		General Surface Collection Grid 9 Row 9 Unit 1		General Surface Collection Grid 9 Row 10 Unit 1		General Surface Collection Grid 9 Row 10 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS								
Thick biface			1	20.4				
Thin biface								
Projectile point/Knife								
Total Chert Tools			1	20.4				
CHERT DEBITAGE								
Multidirectional core								
Primary flake								
Secondary flake	1	3.3					1	6.1
Tertiary flake								
Broken flake	2	1.1						
Shatter			1	1.7	1	10.7	2	267.8
Total Chert Debitage	3	4.4	1	1.7	1	10.7	3	273.9
NONCHERT ARTIFACTS								
Hammerstone								
MISC. MATERIAL								
Fire-cracked rock								
PAGE TOTAL	3	4.4	2	22.1	1	10.7	3	273.9
Utilized Flakes								

Appendix B
(Off-Site Collection Grid 10)

	General Surface Collection Grid 10 Row 1 Unit 1		General Surface Collection Grid 10 Row 1 Unit 2		General Surface Collection Grid 10 Row 2 Unit 1		General Surface Collection Grid 10 Row 2 Unit 2		General Surface Collection Grid 10 Row 3 Unit 1		General Surface Collection Grid 10 Row 3 Unit 2		General Surface Collection Grid 10 Row 4 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Thin biface														
Projectile point/Knife														
Perforating tool														
Total Chert Tools														
CHERT DEBITAGE														
Plano-convex core														
Uni-directional														
Multi-directional core							1	124.8	1	171.0				
Bipolar core											1	277.1	1	39.4
Tested core														
Primary flake	2	93.3											4	37.4
Secondary flake					1	2.8	1	26.6	1	19.6	2	6.2	4	35.0
Tertiary flake			1	2.0					2	12.7	1	1.7	2	12.6
Bifacial thin. flake							1	1.9						
Bipolar flake	2	33.2									2	158.8	1	5.4
Broken flake	2	1.3					1	5.8	3	15.6			4	11.2
Shatter	4	220.0	4	51.7	2	8.4	3	51.6	6	1141.9	1	1.3	1	1.3
Blades														
Total Chert Debitage	10	347.8	5	53.7	3	11.2	7	210.7	13	1360.8	7	445.1	17	142.3
NONCHERT ARTIFACTS														
Hammerstone							1	509.1					1	694.5
MISC. MATERIAL														
Limestone											1	2500.0		
Fire-cracked rock									1	2.0				
Unmodified rock											1	229.0		
Hematite														
Total Misc. Materials									1	2.0	2	2729.0		
PAGE TOTAL	10	347.8	5	53.7	3	11.2	8	719.8	14	1362.8	9	3174.1	18	836.8
Utilized Flakes							1							

Appendix B
(Off-Site Collection Grid 10)

	General Surface Collection Grid 10 Row 4 Unit 2		General Surface Collection Grid 10 Row 5 Unit 1		General Surface Collection Grid 10 Row 5 Unit 2		General Surface Collection Grid 10 Row 6 Unit 1		General Surface Collection Grid 10 Row 6 Unit 2		General Surface Collection Grid 10 Row 15 Unit 1		General Surface Collection Grid 10 Row 15 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Thin biface														
Projectile point/Knife														
Perforating tool														
Total Chert Tools														
CHERT DEBITAGE														
Plano-convex core											1	497.1		
Uni-directional									1	87.4				
Multi-directional core														
Bipolar core					1	21.8	1	83.0						
Tested core	1	80.0												
Primary flake	2	5.2	1	16.4					1	6.0				
Secondary flake	1	1.6			1	32.4	5	27.8						
Tertiary flake	2	16.7	2	2.1					2	3.6			3	19.2
Bifacial thin. flake	1	2.5			1	1.1								
Bipolar flake					1	8.4								
Broken flake	2	3.8	2	0.5					4	11.5	6	19.5	7	6.7
Shatter	3	49.6	4	46.0	6	202.7	3	6.3	1	1.2	7	627.1	1	29.6
Blades														
Total Chert Debitage	12	159.4	9	65.0	10	266.4	9	117.1	9	109.7	14	1143.7	11	55.5
NONCHERT ARTIFACTS														
Hammerstone														
MISC. MATERIAL														
Limestone														
Fire-cracked rock							1	296.6						
Unmodified rock					1	303.5							2	1426.3
Hematite														
Total Misc. Materials					1	303.5	1	296.6					2	1426.3
PAGE TOTAL	12	159.4	9	65.0	11	569.9	10	413.7	9	109.7	14	1143.7	13	1481.8
Utilized Flakes														

Appendix B
(Off-Site Collection Grid 10)

	General Surface Collection Grid 10 Row 16 Unit 1		General Surface Collection Grid 10 Row 16 Unit 2		General Surface Collection Grid 10 Row 17 Unit 1		General Surface Collection Grid 10 Row 17 Unit 2		General Surface Collection Grid 10 Row 18 Unit 1		General Surface Collection Grid 10 Row 18 Unit 2		General Surface Collection Grid 10 Row 19 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Thin biface														
Projectile point/Knife														
Perforating tool														
Total Chert Tools														
CHERT DEBITAGE														
Plano-convex core														
Uni-directional														
Multi-directional core														
Bipolar core														
Tested core														
Primary flake	1	33.2			2	17.3					1	4.4		
Secondary flake	2	15.8	4	85.2	4	68.2			3	92.6	1	9.4	2	1.4
Tertiary flake	1	5.7	1	8.8	2	5.2	2	5.6	6	16.3	4	16.3	2	7.4
Bifacial thin. flake													1	2.7
Bipolar flake													2	8.2
Broken flake	5	4.5	8	21.0	15	36.9	8	10.2	6	19.9	5	45.4	6	13.2
Shatter	2	13.6	5	387.8	14	921.6	3	132.0	1	14.8	3	62.1	12	361.5
Blades			1	12.1					1	11.4				
Total Chert Debitage	11	72.8	19	514.9	37	1049.2	13	147.8	17	155.0	14	137.6	25	394.4
NONCHERT ARTIFACTS														
Hammerstone					2	905.9								
MISC. MATERIAL														
Limestone														
Fire-cracked rock													1	455.2
Unmodified rock													1	163.1
Hematite														
Total Misc. Materials													2	618.3
PAGE TOTAL	11	72.8	19	514.9	39	1955.1	13	147.8	17	155.0	14	137.6	27	1012.7
Utilized Flakes													1	

Appendix B
(Off-Site Collection Grid 10)

	General Surface Collection Grid 10 Row 19 Unit 2		General Surface Collection Grid 10 Row 31 Unit 1		General Surface Collection Grid 10 Row 31 Unit 2		General Surface Collection Grid 10 Row 32 Unit 1		General Surface Collection Grid 10 Row 32 Unit 2		General Surface Collection Grid 10 Row 33 Unit 1		General Surface Collection Grid 10 Row 33 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Thin biface	1	5.1												
Projectile point/Knife			1	5.3										
Perforating tool														
Total Chert Tools	1	5.1	1	5.3										
CHERT DEBITAGE														
Plano-convex core														
Uni-directional														
Multi-directional core													1	536.6
Bipolar core	1	54.8									1	50.6		
Tested core														
Primary flake			1	47.7			1	14.5			2	28.6		
Secondary flake	1	2.0	4	51.5							1	14.2		
Tertiary flake	3	9.6	2	22.7	1	4.8			1	1.0	3	29.4		
Bifacial thin. flake														
Bipolar flake	1	7.7												
Broken flake	1	1.2	3	2.5	4	27.0	3	2.9			4	8.3	1	3.9
Shatter	3	49.1	5	333.6	2	1.9	1	241.2	5	215.4	5	49.6	1	11.7
Blades														
Total Chert Debitage	10	124.4	15	458.0	7	33.7	5	258.6	6	216.4	16	180.7	3	552.2
NONCHERT ARTIFACTS														
Hammerstone	1	655.5												
MISC. MATERIAL														
Limestone														
Fire-cracked rock	1	51.6					1	359.7						
Unmodified rock											1	570.7		
Hematite														
Total Misc. Materials	1	51.6					1	359.7			1	570.7		
PAGE TOTAL	13	836.6	16	463.3	7	33.7	6	618.3	6	216.4	17	751.4	3	552.2
Utilized Flakes			3		1									

Appendix B
(Off-Site Collection Grid 10)

	General Surface Collection Grid 10 Row 34 Unit 1		General Surface Collection Grid 10 Row 35 Unit 1		General Surface Collection Grid 10 Row 35 Unit 2		General Surface Collection Grid 10 Row 36 Unit 1		General Surface Collection Grid 10 Row 36 Unit 2		General Surface Collection Grid 10 Row 37 Unit 1		General Surface Collection Grid 10 Row 37 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Thin biface			2	4.6										
Projectile point/Knife														
Perforating tool	1	6.6									1	26.2		
Total Chert Tools	1	6.6	2	4.6							1	26.2		
CHERT DEBITAGE														
Plano-convex core					1	50.3								
Uni-directional														
Multi-directional core														
Bipolar core			1	46.9										
Tested core														
Primary flake	1	57.5	2	54.7									1	16.4
Secondary flake	2	21.1							1	19.6				
Tertiary flake	1	10.1					2	6.0	3	18.5			2	16.0
Bifacial thin. flake														
Bipolar flake														
Broken flake			3	4.7	1	1.2	3	1.7					1	1.3
Shatter	4	70.5	4	121.0	3	206.8	7	567.6	3	63.6	3	57.5	3	218.3
Blades					1	12.2								
Total Chert Debitage	8	159.2	10	227.3	6	270.5	12	575.3	7	101.7	3	57.5	7	252.0
NONCHERT ARTIFACTS														
Hammerstone														
MISC. MATERIAL														
Limestone														
Fire-cracked rock														
Unmodified rock			1	31.5	1	102.2	1	55.0						
Hematite														
Total Misc. Materials			1	31.5	1	102.2	1	55.0						
PAGE TOTAL	9	165.8	13	263.4	7	372.7	13	630.3	7	101.7	4	83.7	7	252.0
Utilized Flakes			1						1					

Appendix B
(Off-Site Collection Grid 10)

	General Surface Collection Grid 10 Row 38 Unit 1		General Surface Collection Grid 10 Row 38 Unit 2	
	N	W(g)	N	W(g)
CHERT TOOLS				
Thin biface				
Projectile point/Knife				
Perforating tool			1	7.3
Total Chert Tools			1	7.3
CHERT DEBITAGE				
Plano-convex core				
Uni-directional				
Multidirectional core	1	232.6	1	85.0
Bipolar core				
Tested core				
Primary flake			2	116.1
Secondary flake	1	5.7	2	32.0
Tertiary flake	2	11.3	3	18.6
Bifacial thin. flake				
Bipolar flake				
Broken flake			4	36.7
Shatter	5	81.2	4	53.6
Blades				
Total Chert Debitage	9	330.8	16	342.0
NONCHERT ARTIFACTS				
Hammerstone				
MISC. MATERIAL				
Limestone				
Fire-cracked rock				
Unmodified rock				
Hematite			1	15.4
Total Misc. Materials			1	15.4
PAGE TOTAL	9	330.8	18	364.7
Utilized Flakes	2		2	

Appendix B
(Off-Site Collection Grid 11)

	General Surface Collection Grid 11 Row 1 Unit 1		General Surface Collection Grid 11 Row 1 Unit 2		General Surface Collection Grid 11 Row 2 Unit 1		General Surface Collection Grid 11 Row 2 Unit 2		General Surface Collection Grid 11 Row 15 Unit 1		General Surface Collection Grid 11 Row 16 Unit 1		General Surface Collection Grid 11 Row 16 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thin biface														
Retouched flake														
Total Chert Tools														
CHERT DEBITAGE														
Plano-convex core					1	51.1								
Multidirectional core														
Core fragment														
Tested core														
Primary flake	1	51.3									1	3.7		
Secondary flake									1	18				
Tertiary flake	2	2.1	1	0.6					2	4.1				
Bifacial thin. flake														
Bipolar flake														
Broken flake	4	128.1			5	7.5	2	0.7	4	42.2	1	6.7	3	18.3
Shatter	3	42.6			8	92.3	1	32.4	2	50.9	4	531.1	2	239.4
Total Chert Debitage	10	224.1	1	0.6	14	150.9	3	33.1	9	115.2	6	541.5	5	257.7
NONCHERT ARTIFACTS														
Hammerstone	1	430.9												
Hoe														
Total Nonchert Artifacts	1	430.9												
MISC. MATERIAL														
Limestone														
Fire-cracked rock														
Unmodified rock														
Hematite														
Total Misc. Material														
Page Total	11	655	1	0.6	14	150.9	3	33.1	9	115.2	6	541.5	5	257.7
Utilized Flakes														

Appendix B
(Off-Site Collection Grid 11)

	General Surface Collection Grid 11 Row 17 Unit 1		General Surface Collection Grid 11 Row 17 Unit 2		General Surface Collection Grid 11 Row 18 Unit 1		General Surface Collection Grid 11 Row 18 Unit 2		General Surface Collection Grid 11 Row 19 Unit 1		General Surface Collection Grid 11 Row 19 Unit 2		General Surface Collection Grid 11 Row 20 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface											1	593.1		
Thin biface														
Retouched flake														
Total Chert Tools											1	593.1		
CHERT DEBITAGE														
Plano-convex core													1	347.4
Multidirectional core														
Core fragment														
Tested core														
Primary flake														
Secondary flake													2	11.1
Tertiary flake	1	2.7	1	2	2	9							1	3.2
Bifacial thin. flake														
Bipolar flake					1	38.9								
Broken flake	2	1.8	2	5.8	2	3.7	1	19						
Shatter	3	144.5	1	44.6	2	89.4			2	326.8			8	145.9
Total Chert Debitage	6	149	4	52.4	7	141	1	19	2	326.8	0	0	12	507.6
NONCHERT ARTIFACTS														
Hammerstone									1	532.4			1	591.9
Hoe														
Total Nonchert Artifacts									1	532.4			1	591.9
MISC. MATERIAL														
Limestone														
Fire-cracked rock									1	44.9				
Unmodified rock														
Hematite													1	12.8
Total Misc. Material									1	44.9			1	12.8
Page Total	6	149	4	52.4	7	141	1	19	4	904.1	1	593.1	14	1112.3
Utilized Flakes					2									

Appendix B
(Off-Site Collection Grid 11)

	General Surface Collection Grid 11 Row 20 Unit 2		General Surface Collection Grid 11 Row 21 Unit 1		General Surface Collection Grid 11 Row 21 Unit 2		General Surface Collection Grid 11 Row 22 Unit 1		General Surface Collection Grid 11 Row 22 Unit 2		General Surface Collection Grid 11 Row 28 Unit 1		General Surface Collection Grid 11 Row 28 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface			1	103.9			1	69.5						
Thin biface							1	18.9						
Retouched flake							1	24.9						
Total Chert Tools			1	103.9			3	113.3						
CHERT DEBITAGE														
Plano-convex core			1	84.1										
Multidirectional core														
Core fragment														
Tested core														
Primary flake			3	35.4			2	24						
Secondary flake			2	12.4			3	180.4			1	0.2		
Tertiary flake			5	59.4			1	9.4	4	15.8				
Bifacial thin. flake														
Bipolar flake														
Broken flake			17	31.9	1	7	5	11.2	5	4				
Shatter	3	264.3	21	577.4	1	0.2	7	283.7	5	358.4	5	89.4	2	165.8
Total Chert Debitage	3	264.3	49	800.6	2	7.2	18	508.7	14	378.2	6	89.6	2	165.8
NONCHERT ARTIFACTS														
Hammerstone														
Hoe														
Total Nonchert Artifacts														
MISC. MATERIAL														
Limestone														
Fire-cracked rock			1	49.1										
Unmodified rock														
Hematite														
Total Misc. Material			1	49.1										
Page Total	3	264.3	51	953.6	2	7.2	21	622	14	378.2	6	89.6	2	165.8
Utilized Flakes														

Appendix B
(Off-Site Collection Grid 11)

	General Surface Collection Grid 11 Row 29 Unit 1 N	W(g)	General Surface Collection Grid 11 Row 29 Unit 2 N	W(g)	General Surface Collection Grid 11 Row 30 Unit 1 N	W(g)	General Surface Collection Grid 11 Row 30 Unit 2 N	W(g)	General Surface Collection Grid 11 Row 31 Unit 1 N	W(g)	General Surface Collection Grid 11 Row 31 Unit 2 N	W(g)	General Surface Collection Grid 11 Row 32 Unit 1 N	W(g)
CHERT TOOLS														
Rough biface														
Thin biface														
Retouched flake														
Total Chert Tools														
CHERT DEBITAGE														
Plano-convex core			1	502.7					1	181.1				
Multidirectional core									1	59.2				
Core fragment													1	44
Tested core														
Primary flake					2	91.9					1	82.2	2	2.9
Secondary flake	1	6.5											2	23.9
Tertiary flake							1	0.9			1	1.8	3	7.9
Bifacial thin. flake														
Bipolar flake														
Broken flake			2	1.5										
Shatter	6	60.5	2	20	6	257.8					1	0.7	4	122.3
Total Chert Debitage	7	67	5	524.2	8	349.7	1	0.9			3	84.7	12	201
NONCHERT ARTIFACTS														
Hammerstone														
Hoe					1	295.8								
Total Nonchert Artifacts					1	295.8								
MISC. MATERIAL														
Limestone													1	250.6
Fire-cracked rock														
Unmodified rock					1	240.1	1	145.5	3	251.2	1	55.8	4	491.9
Hematite														
Total Misc. Material					1	240.1	1	145.5	3	251.2	1	55.8	5	742.5
Page Total	7	67	5	524.2	10	885.6	2	146.4	3	251.2	4	140.5	17	943.5
Utilized Flakes														

Appendix B
(Off-Site Collection Grid 11)

	General Surface Collection Grid 11 Row 32 Unit 2		General Surface Collection Grid 11 Row 33 Unit 1		General Surface Collection Grid 11 Row 33 Unit 2		General Surface Collection Grid 11 Row 34 Unit 1		General Surface Collection Grid 11 Row 34 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS										
Rough biface								75.5		
Thin biface										
Retouched flake										
Total Chert Tools								75.5		
CHERT DEBITAGE										
Plano-convex core										
Multidirectional core										
Core fragment	1	120.7								
Tested core					1	77.3				
Primary flake	1	4.8	1	4.9					1	37.2
Secondary flake	2	3.1	2	2.9				15.6	2	8.7
Tertiary flake					1	0.1		18.8	2	2.5
Bifacial thin. flake								1.6		
Bipolar flake										
Broken flake			2	1.8	2	0.9		4.1	4	3.5
Shatter	1	0.2	3	110	1	0.1		73.4	5	59.6
Total Chert Debitage	5	128.8	8	119.6	5	78.4		113.5	14	111.5
NONCHERT ARTIFACTS										
Hammerstone										
Hoe										
Total Nonchert Artifacts										
MISC. MATERIAL										
Limestone	1	42.5								
Fire-cracked rock										
Unmodified rock										
Hematite										
Total Misc. Material	1	42.5								
Page Total	6	171.3	8	119.6	5	78.4		189	14	111.5
Utilized Flakes										

Appendix B
(Off-Site Collection Grid 12)

	General Surface Collection Grid 12 Row 1 Unit 1		General Surface Collection Grid 12 Row 1 Unit 2		General Surface Collection Grid 12 Row 2 Unit 1		General Surface Collection Grid 12 Row 2 Unit 2		General Surface Collection Grid 12 Row 3 Unit 1		General Surface Collection Grid 12 Row 3 Unit 2		General Surface Collection Grid 12 Row 4 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Retouched flake														
Wedge														
Total Chert Tools														
CHERT DEBITAGE														
Uni-directional														
Multidirectional core														
Bipolar core													1	155.8
Tested core														
Primary flake							2	16.4	2	7.9	1	12.8	2	25.5
Secondary flake	2	37.5			3	65.9			2	25.4	1	0.5		
Tertiary flake			2	2.9							1	0.7		
Bifacial thin. flake														
Broken flake	2	0.6			1	0.2			1	1	5	8	1	0.8
Shatter	4	31.8	2	3.2	1	0.8	1	129.4	7	42.4	5	16.4	9	92.2
Total Chert Debitage	8	69.9	4	6.1	5	66.9	3	145.8	12	76.7	13	38.4	13	274.3
NONCHERT ARTIFACTS														
Limestone	1	18							2	9				
Hammerstone							1	145.3						
Total Nonchert Artifacts	1	18					1	145.3	2	9				
MISC. MATERIAL														
Fire-cracked rock	1	12.3			1	2.2								
Unmodified rock											2	522.4		
Total Misc. Material	1	12.3			1	2.2					2	522.4		
PAGE TOTAL	10	100.2	4	6.1	6	69.1	4	291.1	14	85.7	15	560.8	13	274.3
Utilized Flakes														

Appendix B
(Off-Site Collection Grid 12)

	General Surface Collection Grid 12 Row 5 Unit 1		General Surface Collection Grid 12 Row 5 Unit 2		General Surface Collection Grid 12 Row 6 Unit 2		General Surface Collection Grid 12 Row 8 Unit 1		General Surface Collection Grid 12 Row 9 Unit 1		General Surface Collection Grid 12 Row 15 Unit 1		General Surface Collection Grid 12 Row 15 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Retouched flake											1	88.2		
Wedge			1	62.4										
Total Chert Tools			1	62.4							1	88.2		
CHERT DEBITAGE														
Uni-directional	1	25.2												
Multidirectional core														
Bipolar core	2	200.8												
Tested core														
Primary flake					1	1.1							2	12.6
Secondary flake	1	0.4									1	2.2		
Tertiary flake											2	3.5		
Bifacial thin. flake											2	3.3		
Broken flake									1	0.7	3	11.4	2	4.5
Shatter	3	5.9	1	1.9							6	184.2		
Total Chert Debitage	7	232.3	1	1.9	1	1.1			1	0.7	14	204.6	4	17.1
NONCHERT ARTIFACTS														
Limestone							2	7.6						
Hammerstone														
Total Nonchert Artifacts							2	7.6						
MISC. MATERIAL														
Fire-cracked rock														
Unmodified rock	1	1469.3												
Total Misc. Material	1	1469.3												
PAGE TOTAL	8	1701.6	2	64.3	1	1.1	2	7.6	1	0.7	15	292.8	4	17.1
Utilized Flakes														

Appendix B
(Off-Site Collection Grid 12)

	General Surface Collection Grid 12 Row 16 Unit 1 N	W(g)	General Surface Collection Grid 12 Row 16 Unit 2 N	W(g)	General Surface Collection Grid 12 Row 17 Unit 1 N	W(g)	General Surface Collection Grid 12 Row 17 Unit 2 N	W(g)	General Surface Collection Grid 12 Row 18 Unit 1 N	W(g)	General Surface Collection Grid 12 Row 18 Unit 2 N	W(g)	General Surface Collection Grid 12 Row 19 Unit 1 N	W(g)
CHERT TOOLS														
Retouched flake														
Wedge														
Total Chert Tools														
CHERT DEBITAGE														
Uni-directional														
Multidirectional core					1	82.4					1	241.1	1	435.6
Bipolar core														
Tested core														
Primary flake					2	102.3			2	19.6				
Secondary flake	3	46.1	1	1	4	45.8	1	4.4	1	3.7			1	7.6
Tertiary flake	1	7			2	4.4	2	10.7	3	11.3				
Bifacial thin. flake					1	3.1			1	1.9				
Broken flake	1	1.4			3	28.3	4	5.1	2	8.3	4	13.8	2	2.7
Shatter	1	86.2	1	0.9	2	5.7			8	941.6	3	174.5	2	17.1
Total Chert Debitage	6	140.7	2	1.9	15	272	7	20.2	17	986.4	8	429.4	6	463
NONCHERT ARTIFACTS														
Limestone														
Hammerstone														
Total Nonchert Artifacts														
MISC. MATERIAL														
Fire-cracked rock														
Unmodified rock					2	711.2			2	876				
Total Misc. Material					2	711.2			2	876				
PAGE TOTAL	6	140.7	2	1.9	17	983.2	7	20.2	19	1862.4	8	429.4	6	463
Utilized Flakes	1						1							

Appendix B
(Off-Site Collection Grid 12)

	General Surface Collection Grid 12 Row 19 Unit 2		General Surface Collection Grid 12 Row 20 Unit 1		General Surface Collection Grid 12 Row 20 Unit 2		General Surface Collection Grid 12 Row 21 Unit 1		General Surface Collection Grid 12 Row 21 Unit 2		General Surface Collection Grid 12 Row 22 Unit 1		General Surface Collection Grid 12 Row 23 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Retouched flake			1	8.2										
Wedge														
Total Chert Tools			1	8.2										
CHERT DEBITAGE														
Uni-directional														
Multidirectional core											2	240.8		
Bipolar core														
Tested core														
Primary flake							2	18.2						
Secondary flake			1	16.1			1	12.5						
Tertiary flake	1	9.4							1	53.5			1	1.1
Bifacial thin. flake													1	0.3
Broken flake							1	0.6			2	3.9		
Shatter	4	136.2			6	524.9			2	148.5	4	364.8	1	3.1
Total Chert Debitage	5	145.6	1	16.1	6	524.9	4	31.3	3	202	8	609.5	3	4.5
NONCHERT ARTIFACTS														
Limestone													1	807.5
Hammerstone														
Total Nonchert Artifacts													1	807.5
MISC. MATERIAL														
Fire-cracked rock			1	13										
Unmodified rock					1	2.4					2	63.9	1	414.2
Total Misc. Material			1	13	1	2.4					2	63.9	1	414.2
PAGE TOTAL	5	145.6	3	37.3	7	527.3	4	31.3	3	202	10	673.4	5	1226.2
Utilized Flakes														

Appendix B
(Off-Site Collection Grid 12)

	General Surface Collection Grid 12 Row 23 Unit 2		General Surface Collection Grid 12 Row 24 Unit 1		General Surface Collection Grid 12 Row 24 Unit 2		General Surface Collection Grid 12 Row 25 Unit 1		General Surface Collection Grid 12 Row 25 Unit 2		General Surface Collection Grid 12 Row 26 Unit 1		General Surface Collection Grid 12 Row 26 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Retouched flake														
Wedge														
Total Chert Tools														
CHERT DEBITAGE														
Uni-directional														
Multidirectional core					1	80.5								
Bipolar core														
Tested core														
Primary flake	1	3.3			1	18.6								
Secondary flake											1	0.6	1	10.4
Tertiary flake					1	2.1	1	0.6						
Bifacial thin. flake														
Broken flake											1	2.4		
Shatter	2	33.5	1	18.4					1	18	6	123.2	1	11.8
Total Chert Debitage	3	36.8	1	18.4	3	101.2	1	0.6	1	18	8	126.2	2	22.2
NONCHERT ARTIFACTS														
Limestone														
Hammerstone														
Total Nonchert Artifacts														
MISC. MATERIAL														
Fire-cracked rock														
Unmodified rock					1	201.8								
Total Misc. Material					1	201.8								
PAGE TOTAL	3	36.8	1	18.4	4	303	1	0.6	1	18	8	126.2	2	22.2
Utilized Flakes														

Appendix B
(Off-Site Collection Grid 12)

	General Surface Collection Grid 12 Row 27 Unit 1		General Surface Collection Grid 12 Row 27 Unit 2		General Surface Collection Grid 12 Row 28 Unit 1		General Surface Collection Grid 12 Row 28 Unit 2		General Surface Collection Grid 12 Row 29 Unit 1		General Surface Collection Grid 12 Row 29 Unit 2		General Surface Collection Grid 12 Row 30 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Retouched flake														
Wedge														
Total Chert Tools														
CHERT DEBITAGE														
Uni-directional														
Multidirectional core														
Bipolar core														
Tested core													1	507.6
Primary flake	1	14.2	1	76.9							2	60.6		
Secondary flake					3	78.8			1	11.1				
Tertiary flake	2	4.6	1	1.1			2	3.4	1	0.2			2	2.6
Bifacial thin. flake														
Broken flake														
Shatter	2	22					1	2.1	2	0.6	2	68.9	1	2.9
Total Chert Debitage	5	40.8	2	78	3	78.8	3	5.5	4	11.9	4	129.5	4	513.1
NONCHERT ARTIFACTS														
Limestone			1	419.2										
Hammerstone			1	1140.5					1	290.6				
Total Nonchert Artifacts			2	1559.7					1	290.6				
MISC. MATERIAL														
Fire-cracked rock														
Unmodified rock	3	256.3	3	525.6	1	152.3			1	3				
Total Misc. Material	3	256.3	3	525.6	1	152.3			1	3				
PAGE TOTAL	8	297.1	7	2163.3	4	231.1	3	5.5	6	305.5	4	129.5	4	513.1
Utilized Flakes														

Appendix B
(Off-Site Collection Grid 12)

	General Surface Collection Grid 12 Row 30 Unit 2 N	W(g)
CHERT TOOLS		
Retouched flake		
Wedge		
Total Chert Tools		
CHERT DEBITAGE		
Uni-directional		
Multidirectional core		
Bipolar core		
Tested core		
Primary flake	1	27.8
Secondary flake		
Tertiary flake		
Bifacial thin. flake		
Broken flake		
Shatter	1	10.9
Total Chert Debitage	2	38.7
NONCHERT ARTIFACTS		
Limestone	1	51.3
Hammerstone		
Total Nonchert Artifacts	1	51.3
MISC. MATERIAL		
Fire-cracked rock		
Unmodified rock		
Total Misc. Material		
PAGE TOTAL	3	90
Utilized Flakes		

Appendix B
(Off-Site Collection Grid 13)

	General Surface Collection Grid 13 Row 1 Unit 1		General Surface Collection Grid 13 Row 1 Unit 2		General Surface Collection Grid 13 Row 2 Unit 1		General Surface Collection Grid 13 Row 3 Unit 1		General Surface Collection Grid 13 Row 4 Unit 1		General Surface Collection Grid 13 Row 5 Unit 1		General Surface Collection Grid 13 Row 7 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Thick biface														
Projectile point/Knife														
Total Chert Tools														
CHERT DEBITAGE														
Primary flake														
Secondary flake													1	27.7
Tertiary flake														
Broken flake	3	2.2	2	2.6	2	1.3	1	2.5						
Shatter			2	59.8			2	351.7	2	175				
Total Chert Debitage	3	2.2	4	62.4	2	1.3	3	354.2	2	175			1	27.7
NONCHERT ARTIFACTS														
Hammerstone														
MISC. MATERIAL														
Unmodified rock									3	7.1	1	10.3		
PAGE TOTAL	3	2.2	4	62.4	2	1.3	3	354.2	5	182.1	1	10.3	1	27.7

Appendix B
(Off-Site Collection Grid 13)

	General Surface Collection Grid 13 Row 8 Unit 1		General Surface Collection Grid 13 Row 9 Unit 1		General Surface Collection Grid 13 Row 9 Unit 2		General Surface Collection Grid 13 Row 10 Unit 1		General Surface Collection Grid 13 Row 10 Unit 2		General Surface Collection Grid 13 Row 11 Unit 1		General Surface Collection Grid 13 Row 11 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Thick biface														
Projectile point/Knife														
Total Chert Tools														
CHERT DEBITAGE														
Primary flake													1	16.4
Secondary flake														
Tertiary flake														
Broken flake							1	2.3	1	1.3	2	1.9	3	5.3
Shatter	2	363.7	1	17.1							3	68.8	2	147.7
Total Chert Debitage	2	363.7	1	17.1			1	2.3	1	1.3	5	70.7	6	169.4
NONCHERT ARTIFACTS														
Hammerstone											1	316.1		
MISC. MATERIAL														
Unmodified rock	3	25.8			1	119.2	2	31.5	1	52.4				
PAGE TOTAL	5	389.5	1	17.1	1	119.2	3	33.8	2	53.7	6	386.8	6	169.4

Appendix B
(Off-Site Collection Grid 13)

	General Surface Collection Grid 13 Row 12 Unit 1		General Surface Collection Grid 13 Row 12 Unit 2		General Surface Collection Grid 13 Row 13 Unit 1		General Surface Collection Grid 13 Row 13 Unit 2		General Surface Collection Grid 13 Row 14 Unit 1		General Surface Collection Grid 13 Row 14 Unit 2		General Surface Collection Grid 13 Row 16 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Thick biface														
Projectile point/Knife														
Total Chert Tools														
CHERT DEBITAGE														
Primary flake														
Secondary flake													3	39.4
Tertiary flake													1	0.7
Broken flake					4	4.5	2	5.7	4	9				
Shatter			1	0.6	2	410.6			2	63.1	1	47.3	2	34.2
Total Chert Debitage			1	0.6	6	415.1	2	5.7	6	72.1	1	47.3	6	74.3
NONCHERT ARTIFACTS														
Hammerstone														
MISC. MATERIAL														
Unmodified rock	1	175.1	1	2.9							1	2.3		
PAGE TOTAL	1	175.1	2	3.5	6	415.1	2	5.7	6	72.1	2	49.6	6	74.3

Appendix B
(Off-Site Collection Grid 13)

	General Surface Collection Grid 13 Row 16 Unit 2		General Surface Collection Grid 13 Row 17 Unit 1		General Surface Collection Grid 13 Row 17 Unit 2		General Surface Collection Grid 13 Row 18 Unit 1		General Surface Collection Grid 13 Row 18 Unit 2		General Surface Collection Grid 13 Row 19 Unit 1		General Surface Collection Grid 13 Row 19 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Thick biface					1	42.4								
Projectile point/Knife														
Total Chert Tools					1	42.4								
CHERT DEBITAGE														
Primary flake			1	27.7										
Secondary flake							1	8.8			1	11.9	1	13.6
Tertiary flake														
Broken flake	1	0.5	1	4.3			1	1.1			1	2.3	1	0.8
Shatter	1	1.4	2	387					1	0.9	3	3		
Total Chert Debitage	2	1.9	4	419			2	9.9	1	0.9	5	17.2	2	14.4
NONCHERT ARTIFACTS														
Hammerstone							1	157						
MISC. MATERIAL														
Unmodified rock											2	5.1		
PAGE TOTAL	2	1.9	4	419	1	42.4	3	166.9	1	0.9	7	22.3	2	14.4

Appendix B
(Off-Site Collection Grid 13)

	General Surface Collection Grid 13 Row 20 Unit 1		General Surface Collection Grid 13 Row 21 Unit 1		General Surface Collection Grid 13 Row 22 Unit 1		General Surface Collection Grid 13 Row 23 Unit 2		General Surface Collection Grid 13 Row 24 Unit 1		General Surface Collection Grid 13 Row 25 Unit 1		General Surface Collection Grid 13 Row 26 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Thick biface														
Projectile point/Knife									1	1.6				
Total Chert Tools									1	1.6				
CHERT DEBITAGE														
Primary flake									1	1.8				
Secondary flake											1	8		
Tertiary flake														
Broken flake			1	7.6			1	0.1	1	0.6			1	2.8
Shatter	2	24.5									1	5		
Total Chert Debitage	2	24.5	1	7.6			1	0.1	2	2.4	2	13	1	2.8
NONCHERT ARTIFACTS														
Hammerstone														
MISC. MATERIAL														
Unmodified rock					1	8.4	1	7.4						
PAGE TOTAL	2	24.5	1	7.6	1	8.4	2	7.5	3	4	2	13	1	2.8

Appendix B
(Off-Site Collection Grid 13)

	General Surface Collection Grid 13 Row 27 Unit 1		General Surface Collection Grid 13 Row 28 Unit 1		General Surface Collection Grid 13 Row 29 Unit 1	
	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS						
Thick biface						
Projectile point/Knife						
Total Chert Tools						
CHERT DEBITAGE						
Primary flake						
Secondary flake						
Tertiary flake						
Broken flake	1	0.1			4	33.7
Shatter			2	28.3	1	35.9
Total Chert Debitage	1	0.1	2	28.3	5	69.6
NONCHERT ARTIFACTS						
Hammerstone						
MISC. MATERIAL						
Unmodified rock					1	5.3
PAGE TOTAL	1	0.1	2	28.3	6	74.9

Appendix B
(Off-Site Collection Grid 14)

	General Surface Collection Grid 14 Row 1 Unit 1		General Surface Collection Grid 14 Row 2 Unit 1		General Surface Collection Grid 14 Row 4 Unit 1		General Surface Collection Grid 14 Row 5 Unit 1		General Surface Collection Grid 14 Row 5 Unit 2		General Surface Collection Grid 14 Row 6 Unit 1		General Surface Collection Grid 14 Row 6 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Thick biface														
CHERT DEBITAGE														
Multidirectional core														
Unidirectional core														
Primary flake														
Secondary flake			1	11.3			2	6			3	17.9		
Tertiary flake							2	2.3	1	0.9	1	2.3	2	4.9
Broken flake														
Shatter					1	2.6								
Total Chert Debitage			1	11.3	1	2.6	4	8.3	1	0.9	4	20.2	2	4.9
MISC. MATERIAL														
Limestone														
Fire-cracked rock	1	1.2												
Unmodified rock							1	346.2					1	142
Total Misc. Material	1	1.2					1	346.2					1	142
PAGE TOTAL	1	1.2	1	11.3	1	2.6	5	354.5	1	0.9	4	20.2	3	146.9

Appendix B
(Off-Site Collection Grid 14)

	General Surface Collection Grid 14 Row 7 Unit 1		General Surface Collection Grid 14 Row 7 Unit 2		General Surface Collection Grid 14 Row 8 Unit 1		General Surface Collection Grid 14 Row 8 Unit 2		General Surface Collection Grid 14 Row 9 Unit 1		General Surface Collection Grid 14 Row 9 Unit 2		General Surface Collection Grid 14 Row 10 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Thick biface														
CHERT DEBITAGE														
Multidirectional core														
Unidirectional core														
Primary flake														
Secondary flake			1	1.5	1	9.6	1	1.3					1	1.1
Tertiary flake					2	2								
Broken flake	1	0.1	1	0.1										
Shatter	3	34.7	1	1.1	2	25.6	1	2.7			1	0.1	1	2.5
Total Chert Debitage	4	34.8	3	2.7	5	37.2	2	4			1	0.1	2	3.6
MISC. MATERIAL														
Limestone														
Fire-cracked rock														
Unmodified rock							1	3.8	1	1				
Total Misc. Material							1	3.8	1	1				
PAGE TOTAL	4	34.8	3	2.7	5	37.2	3	7.8	1	1	1	0.1	2	3.6

Appendix B
(Off-Site Collection Grid 14)

	General Surface Collection Grid 14 Row 11 Unit 1		General Surface Collection Grid 14 Row 11 Unit 2		General Surface Collection Grid 14 Row 13 Unit 1		General Surface Collection Grid 14 Row 14 Unit 1		General Surface Collection Grid 14 Row 14 Unit 2		General Surface Collection Grid 14 Row 15 Unit 1		General Surface Collection Grid 14 Row 15 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Thick biface														
CHERT DEBITAGE														
Multidirectional core			1	34.8										
Unidirectional core							1	318.9			1	322.5		
Primary flake	1	11.9			1	53.7								
Secondary flake														
Tertiary flake														
Broken flake	1	0.2												
Shatter														
Total Chert Debitage	2	12.1	1	34.8	1	53.7	1	318.9			1	322.5		
MISC. MATERIAL														
Limestone	2	19.4					1	10.5	1	0.6	2	20.1	3	5.4
Fire-cracked rock														
Unmodified rock														
Total Misc. Material	2	19.4					1	10.5	1	0.6	2	20.1	3	5.4
PAGE TOTAL	4	31.5	1	34.8	1	53.7	2	329.4	1	0.6	3	342.6	3	5.4

Appendix B
(Off-Site Collection Grid 14)

	General Surface Collection Grid 14 Row 16 Unit 1		General Surface Collection Grid 14 Row 16 Unit 2		General Surface Collection Grid 14 Row 17 Unit 1		General Surface Collection Grid 14 Row 17 Unit 2		General Surface Collection Grid 14 Row 18 Unit 1		General Surface Collection Grid 14 Row 18 Unit 2		General Surface Collection Grid 14 Row 19 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Thick biface					1	10								
CHERT DEBITAGE														
Multidirectional core	1	125.2												
Unidirectional core														
Primary flake			1	12.4	1	102.6								
Secondary flake					1	10.4							1	7.2
Tertiary flake														
Broken flake											1	1.8		
Shatter	1	106.9							1	6.1				
Total Chert Debitage	2	232.1	1	12.4	2	113			1	6.1	1	1.8	1	7.2
MISC. MATERIAL														
Limestone					2	4.5								
Fire-cracked rock														
Unmodified rock							1	40.7						
Total Misc. Material					2	4.5	1	40.7						
PAGE TOTAL	2	232.1	1	12.4	5	127.5	1	40.7	1	6.1	1	1.8	1	7.2

Appendix B
(Off-Site Collection Grid 14)

	General Surface Collection Grid 14 Row 20 Unit 1		General Surface Collection Grid 14 Row 20 Unit 2		General Surface Collection Grid 14 Row 21 Unit 1	
	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS						
Thick biface						
CHERT DEBITAGE						
Multidirectional core						
Unidirectional core						
Primary flake						
Secondary flake	1	0.9				
Tertiary flake			1	1	1	0.9
Broken flake	1	2.9				
Shatter						
Total Chert Debitage	2	3.8	1	1	1	0.9
MISC. MATERIAL						
Limestone						
Fire-cracked rock						
Unmodified rock						
Total Misc. Material						
PAGE TOTAL	2	3.8	1	1	1	0.9

Appendix B
(Off-Site Collection Grid 15)

	General Surface Collection Grid 15 Row 1 Unit 1		General Surface Collection Grid 15 Row 1 Unit 2		General Surface Collection Grid 15 Row 2 Unit 1		General Surface Collection Grid 15 Row 2 Unit 2		General Surface Collection Grid 15 Row 3 Unit 1		General Surface Collection Grid 15 Row 3 Unit 2		General Surface Collection Grid 15 Row 4 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
CHERT DEBITAGE														
Primary flake					1	3.1								
Secondary flake									1	52.8	1	5.5		
Tertiary flake														
Broken flake	2	4.7	1	0.9	2	16.9	1	0.5					1	0.6
Shatter													1	3.9
Total Chert Debitage	2	4.7	1	0.9	3	20	1	0.5	1	52.8	1	5.5	2	4.5
NONCHERT ARTIFACTS														
Hammerstone														
MISC. MATERIAL														
Fire-cracked rock														
Unmodified rock			1	6.2			1	6.8	1	14.8				
Concrete														
Total Misc. Material			1	6.2			1	6.8	1	14.8				
PAGE TOTAL	2	4.7	2	7.1	3	20	2	7.3	2	67.6	1	5.5	2	4.5

Appendix B
(Off-Site Collection Grid 15)

	General Surface Collection Grid 15 Row 5 Unit 1		General Surface Collection Grid 15 Row 6 Unit 1		General Surface Collection Grid 15 Row 6 Unit 2		General Surface Collection Grid 15 Row 7 Unit 1		General Surface Collection Grid 15 Row 7 Unit 2		General Surface Collection Grid 15 Row 8 Unit 1		General Surface Collection Grid 15 Row 9 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
CHERT DEBITAGE														
Primary flake														
Secondary flake	1	10.3							1	53.9	1	13.1		
Tertiary flake					1	5.2							1	6.4
Broken flake	1	2.9	1	0.7							1	0.9	3	19.8
Shatter	1	49	1	21.6	1	125	1	226.8	1	18	4	229.5	1	7.3
Total Chert Debitage	3	62.2	2	22.3	2	130.2	1	226.8	2	71.9	6	243.5	5	33.5
NONCHERT ARTIFACTS														
Hammerstone														
MISC. MATERIAL														
Fire-cracked rock														
Unmodified rock	1	1.9									1	5.9		
Concrete														
Total Misc. Material	1	1.9									1	5.9		
PAGE TOTAL	4	64.1	2	22.3	2	130.2	1	226.8	2	71.9	7	249.4	5	33.5

Appendix B
(Off-Site Collection Grid 15)

	General Surface Collection Grid 15 Row 9 Unit 2		General Surface Collection Grid 15 Row 10 Unit 1		General Surface Collection Grid 15 Row 10 Unit 2		General Surface Collection Grid 15 Row 11 Unit 1		General Surface Collection Grid 15 Row 11 Unit 2		General Surface Collection Grid 15 Row 13 Unit 1		General Surface Collection Grid 15 Row 15 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
CHERT DEBITAGE														
Primary flake													1	32.8
Secondary flake														
Tertiary flake			1	6.1										
Broken flake	2	4.4			7	18.4	4	8.6	2	1.6				
Shatter					2	139.5	3	92.2	2	72.7			1	16
Total Chert Debitage	2	4.4	1	6.1	9	157.9	7	100.8	4	74.3			2	48.8
NONCHERT ARTIFACTS														
Hammerstone														
MISC. MATERIAL														
Fire-cracked rock													1	22.9
Unmodified rock					1	10.5					3	11.6		
Concrete													1	450
Total Misc. Material					1	10.5					3	11.6	2	472.9
PAGE TOTAL	2	4.4	1	6.1	10	168.4	7	100.8	4	74.3	3	11.6	4	521.7

Appendix B
(Off-Site Collection Grid 15)

	General Surface Collection Grid 15 Row 15 Unit 2		General Surface Collection Grid 15 Row 16 Unit 1		General Surface Collection Grid 15 Row 16 Unit 2		General Surface Collection Grid 15 Row 17 Unit 1		General Surface Collection Grid 15 Row 17 Unit 2		General Surface Collection Grid 15 Row 21 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS												
Rough biface					1	51.9						
CHERT DEBITAGE												
Primary flake												
Secondary flake												
Tertiary flake												
Broken flake									1	2.4	1	7.3
Shatter	1	4	1	53.5								
Total Chert Debitage	1	4	1	53.5					1	2.4	1	7.3
NONCHERT ARTIFACTS												
Hammerstone							1	493.5				
MISC. MATERIAL												
Fire-cracked rock												
Unmodified rock	1	48.1					1	4.2				
Concrete												
Total Misc. Material	1	48.1					1	4.2				
PAGE TOTAL	2	52.1	1	53.5	1	51.9	2	497.7	1	2.4	1	7.3

Appendix B
(Off-Site Collection Grid 16)

	General Surface Collection Grid 16 Row 26 Unit 1		General Surface Collection Grid 16 Row 26 Unit 2		General Surface Collection Grid 16 Row 27 Unit 1		General Surface Collection Grid 16 Row 27 Unit 2		General Surface Collection Grid 16 Row 28 Unit 1		General Surface Collection Grid 16 Row 28 Unit 2		General Surface Collection Grid 16 Row 29 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface									1	118.2				
Thick biface														
Thin biface									1	6.3				
Total Chert Tools									2	124.5				
CHERT DEBITAGE														
Bipolar core														
Secondary flake							1	10			1	0.4		
Tertiary flake			2	3.8									1	1.9
Broken flake					1	0.5					1	1.6		
Shatter	1	6.3	1	1.1	2	3.9	3	4.1	2	11.2	6	134.2	2	159.2
Total Chert Debitage	1	6.3	3	4.9	3	4.4	4	14.1	2	11.2	8	136.2	3	161.1
NONCHERT ARTIFACTS														
Cobble														
MISC. MATERIAL														
Limestone					1	2.4	2	8.5						
Unmodified rock														
Historic material														
Total Misc. Material					1	2.4	2	8.5						
PAGE TOTAL	1	6.3	3	4.9	4	6.8	6	22.6	4	135.7	8	136.2	3	161.1

Appendix B
(Off-Site Collection Grid 16)

	General Surface Collection Grid 16 Row 29 Unit 2		General Surface Collection Grid 16 Row 30 Unit 1		General Surface Collection Grid 16 Row 31 Unit 1		General Surface Collection Grid 16 Row 31 Unit 2		General Surface Collection Grid 16 Row 32 Unit 1		General Surface Collection Grid 16 Row 33 Unit 1		General Surface Collection Grid 16 Row 33 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Total Chert Tools														
CHERT DEBITAGE														
Bipolar core														
Secondary flake					1	1.1								
Tertiary flake														
Broken flake	1	0.6							1	1.8				
Shatter	1	1.7					1	4.6	1	0.7	3	10.5		
Total Chert Debitage	2	2.3			1	1.1	1	4.6	2	2.5	3	10.5		
NONCHERT ARTIFACTS														
Cobble			1	18.9										
MISC. MATERIAL														
Limestone					1	8.2	1	41.2	1	0.4	2	2.9	1	3.4
Unmodified rock													1	73.4
Historic material														
Total Misc. Material					1	8.2	1	41.2	1	0.4	2	2.9	2	76.8
PAGE TOTAL	2	2.3	1	18.9	2	9.3	2	45.8	3	2.9	5	13.4	2	76.8

Appendix B
(Off-Site Collection Grid 16)

	General Surface Collection Grid 16 Row 34 Unit 1		General Surface Collection Grid 16 Row 34 Unit 2		General Surface Collection Grid 16 Row 35 Unit 1		General Surface Collection Grid 16 Row 35 Unit 2		General Surface Collection Grid 16 Row 36 Unit 1		General Surface Collection Grid 16 Row 36 Unit 2		General Surface Collection Grid 16 Row 37 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface									1	35.8				
Thin biface														
Total Chert Tools									1	35.8				
CHERT DEBITAGE														
Bipolar core											1	179.4		
Secondary flake					1	16								
Tertiary flake														
Broken flake													1	0.4
Shatter	1	1.1	1	0.4	3	17.4	1	9.4	4	38.6	1	2.2	3	93.7
Total Chert Debitage	1	1.1	1	0.4	4	33.4	1	9.4	4	38.6	2	181.6	4	94.1
NONCHERT ARTIFACTS														
Cobble														
MISC. MATERIAL														
Limestone			1	1.8			1	0.9			1	5.7		
Unmodified rock	2	7												
Historic material														
Total Misc. Material	2	7	1	1.8			1	0.9			1	5.7		
PAGE TOTAL	3	8.1	2	2.2	4	33.4	2	10.3	5	74.4	3	187.3	4	94.1

Appendix B
(Off-Site Collection Grid 16)

	General Surface Collection Grid 16 Row 38 Unit 1 N	W(g)	General Surface Collection Grid 16 Row 38 Unit 2 N	W(g)	General Surface Collection Grid 16 Row 39 Unit 1 N	W(g)	General Surface Collection Grid 16 Row 40 Unit 1 N	W(g)	General Surface Collection Grid 16 Row 41 Unit 1 N	W(g)	General Surface Collection Grid 16 Row 43 Unit 1 N	W(g)	General Surface Collection Grid 16 Row 44 Unit 1 N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface														
Thin biface														
Total Chert Tools														
CHERT DEBITAGE														
Bipolar core									1	217.8				
Secondary flake											1	4.9		
Tertiary flake														
Broken flake					1	0.4								
Shatter	1	45.5	1	18.8	2	35.2	4	6.8	1	43.1			4	15.1
Total Chert Debitage	1	45.5	1	18.8	3	35.6	4	6.8	2	260.9	1	4.9	4	15.1
NONCHERT ARTIFACTS														
Cobble														
MISC. MATERIAL														
Limestone					4	23.3					1	50.5		
Unmodified rock														
Historic material					1	2.1								
Total Misc. Material					5	25.4					1	50.5		
PAGE TOTAL	1	45.5	1	18.8	8	61	4	6.8	2	260.9	2	55.4	4	15.1

Appendix B
(Off-Site Collection Grid 16)

	General Surface Collection Grid 16 Row 45 Unit 1		General Surface Collection Grid 16 Row 46 Unit 1	
	N	W(g)	N	W(g)
CHERT TOOLS				
Rough biface				
Thick biface				
Thin biface				
Total Chert Tools				
CHERT DEBITAGE				
Bipolar core				
Secondary flake				
Tertiary flake				
Broken flake				
Shatter	2	3.8	3	1.6
Total Chert Debitage	2	3.8	3	1.6
NONCHERT ARTIFACTS				
Cobble				
MISC. MATERIAL				
Limestone				
Unmodified rock				
Historic material				
Total Misc. Material				
PAGE TOTAL	2	3.8	3	1.6

Appendix B
(Off-Site Collection Grid 20)

	General Surface Collection Grid 20 Row 1 Unit 1		General Surface Collection Grid 20 Row 1 Unit 2		General Surface Collection Grid 20 Row 2 Unit 1		General Surface Collection Grid 20 Row 2 Unit 2		General Surface Collection Grid 20 Row 3 Unit 1		General Surface Collection Grid 20 Row 3 Unit 2		General Surface Collection Grid 20 Row 4 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface													1	112.7
CHERT DEBITAGE														
Multidirectional core									1	156.6				
Core fragment														
Primary flake					1	4								
Secondary flake	2	54.9	1	13.2									2	27.2
Tertiary flake	4	8.9	1	0.6					4	1.3	1	0.1	3	6.7
Bifacial thin. flake			1	0.2										
Broken flake	2	0.3	1	2.8					1	1.5				
Shatter	4	91.5	4	3.7	3	31.3	3	1.7	1	8.3				
Blades														
Total Chert Debitage	12	155.6	8	20.5	4	35.3	3	1.7	7	167.7	1	0.1	5	33.9
NONCHERT ARTIFACTS														
Cobble														
MISC. MATERIAL														
Limestone													1	4.3
Fire-cracked rock													1	125.9
Unmodified rock														
Total Misc. Material													2	130.2
PAGE TOTAL	12	155.6	8	20.5	4	35.3	3	1.7	7	167.7	1	0.1	8	276.8
Utilized Flakes	1								1					

Appendix B
(Off-Site Collection Grid 20)

	General Surface Collection Grid 20 Row 4 Unit 2		General Surface Collection Grid 20 Row 5 Unit 1		General Surface Collection Grid 20 Row 5 Unit 2		General Surface Collection Grid 20 Row 6 Unit 1		General Surface Collection Grid 20 Row 6 Unit 2		General Surface Collection Grid 20 Row 7 Unit 1		General Surface Collection Grid 20 Row 7 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
CHERT DEBITAGE														
Multidirectional core			1	62.8										
Core fragment														
Primary flake											1	197.4		
Secondary flake														
Tertiary flake	1	17.6	1	5.5	1	0.1			1	1.2			1	0.2
Bifacial thin. flake														
Broken flake					1	1.2	2	5.6			3	1.2		
Shatter					1	41.4	1	0.3	2	20.4	2	13.9	1	16
Blades			1	5.3										
Total Chert Debitage	1	17.6	3	73.6	3	42.7	3	5.9	3	21.6	6	212.5	2	16.2
NONCHERT ARTIFACTS														
Cobble			1	920.5										
MISC. MATERIAL														
Limestone														
Fire-cracked rock														
Unmodified rock														
Total Misc. Material														
PAGE TOTAL	1	17.6	4	994.1	3	42.7	3	5.9	3	21.6	6	212.5	2	16.2
Utilized Flakes	1													

Appendix B
(Off-Site Collection Grid 20)

	General Surface Collection Grid 20 Row 8 Unit 1		General Surface Collection Grid 20 Row 8 Unit 2		General Surface Collection Grid 20 Row 9 Unit 1		General Surface Collection Grid 20 Row 9 Unit 2		General Surface Collection Grid 20 Row 10 Unit 1		General Surface Collection Grid 20 Row 10 Unit 2		General Surface Collection Grid 20 Row 11 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
CHERT DEBITAGE														
Multidirectional core														
Core fragment														
Primary flake													1	60.9
Secondary flake	1	2.7	1	5					2	9.4			1	0.6
Tertiary flake	1	1.9			1	0.4			1	0.5	1	3.6	1	0.3
Bifacial thin. flake														
Broken flake	4	1.4												
Shatter	6	131.8			3	57.1	1	21.9	3	69.4	5	102.6	2	4.3
Blades														
Total Chert Debitage	12	137.8	1	5	4	57.5	1	21.9	6	79.3	6	106.2	5	66.1
NONCHERT ARTIFACTS														
Cobble														
MISC. MATERIAL														
Limestone														
Fire-cracked rock														
Unmodified rock							1	195.2						
Total Misc. Material							1	195.2						
PAGE TOTAL	12	137.8	1	5	4	57.5	2	217.1	6	79.3	6	106.2	5	66.1
Utilized Flakes														

Appendix B
(Off-Site Collection Grid 20)

	General Surface Collection Grid 20 Row 11 Unit 2		General Surface Collection Grid 20 Row 12 Unit 1		General Surface Collection Grid 20 Row 12 Unit 2		General Surface Collection Grid 20 Row 13 Unit 1		General Surface Collection Grid 20 Row 13 Unit 2	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS										
Rough biface										
CHERT DEBITAGE										
Multidirectional core										
Core fragment			1	121.9						
Primary flake			2	22.7	1	60.4				
Secondary flake	2	11.9					2	1		
Tertiary flake									1	0.5
Bifacial thin. flake										
Broken flake										
Shatter	2	4.4	1	1.8	1	45.2	2	40.2		
Blades										
Total Chert Debitage	4	16.3	4	146.4	2	105.6	4	41.2	1	0.5
NONCHERT ARTIFACTS										
Cobble										
MISC. MATERIAL										
Limestone					1	26.3				
Fire-cracked rock			1	19.6						
Unmodified rock			1	373.9						
Total Misc. Material			2	393.5	1	26.3				
PAGE TOTAL	4	16.3	6	539.9	3	131.9	4	41.2	1	0.5
Utilized Flakes										

Appendix B
(Off-Site Collection Grid 24)

	General Surface Collection Grid 24 Row 2 Unit 1		General Surface Collection Grid 24 Row 4 Unit 1		General Surface Collection Grid 24 Row 5 Unit 1		General Surface Collection Grid 24 Row 6 Unit 1		General Surface Collection Grid 24 Row 7 Unit 1		General Surface Collection Grid 24 Row 8 Unit 1		General Surface Collection Grid 24 Row 15 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Perforating tool							1	7.2						
CHERT DEBITAGE														
Plano-convex core													1	86.5
Secondary flake							1	7.5						
Broken flake			2	0.6			1	3.1	1	2.5				
Shatter	1	125.6	2	19.1	2	9	2	20			2	131.8	1	14
Total Chert Debitage	1	125.6	4	19.7	2	9	4	30.6	1	2.5	2	131.8	2	100.5
MISC. MATERIAL														
Fire-cracked rock														
Unmodified rock					3	13.4								
Total Misc. Material					3	13.4								
PAGE TOTAL	1	125.6	4	19.7	5	22.4	5	37.8	1	2.5	2	131.8	2	100.5

Appendix B
(Off-Site Collection Grid 24)

	General Surface Collection Grid 24 Row 16 Unit 1		General Surface Collection Grid 24 Row 18 Unit 1		General Surface Collection Grid 24 Row 19 Unit 1		General Surface Collection Grid 24 Row 20 Unit 1		General Surface Collection Grid 24 Row 21 Unit 1		General Surface Collection Grid 24 Row 22 Unit 1		General Surface Collection Grid 24 Row 23 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Perforating tool														
CHERT DEBITAGE														
Plano-convex core														
Secondary flake			1	9.7										
Broken flake	1	0.8	2	2.9	1	0.3					3	5.2		
Shatter			1	21.1			1	14.1	1	1.5				
Total Chert Debitage	1	0.8	4	33.7	1	0.3	1	14.1	1	1.5	3	5.2		
MISC. MATERIAL														
Fire-cracked rock									1	18.9				
Unmodified rock													1	1.6
Total Misc. Material									1	18.9			1	1.6
PAGE TOTAL	1	0.8	4	33.7	1	0.3	1	14.1	2	20.4	3	5.2	1	1.6

Appendix B
(Off-Site Collection Grid 24)

	General Surface Collection Grid 24 Row 24 Unit 1		General Surface Collection Grid 24 Row 25 Unit 1		General Surface Collection Grid 24 Row 26 Unit 1	
	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS						
Perforating tool						
CHERT DEBITAGE						
Plano-convex core						
Secondary flake						
Broken flake	1	1.7				
Shatter					1	14.5
Total Chert Debitage	1	1.7			1	14.5
MISC. MATERIAL						
Fire-cracked rock			1	13.8		
Unmodified rock	1	303.4				
Total Misc. Material	1	303.4	1	13.8		
PAGE TOTAL	2	305.1	1	13.8	1	14.5

Appendix B
(Off-Site Collection Grid 25)

	General Surface Collection Grid 25 Row 1 Unit 1		General Surface Collection Grid 25 Row 1 Unit 2		General Surface Collection Grid 25 Row 2 Unit 1		General Surface Collection Grid 25 Row 2 Unit 2		General Surface Collection Grid 25 Row 3 Unit 1		General Surface Collection Grid 25 Row 4 Unit 1		General Surface Collection Grid 25 Row 5 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Thin biface														
CHERT DEBITAGE														
Primary flake	1	0.4												
Secondary flake	1	10.3												
Tertiary flake			1	0.5			1	3.4						
Broken flake														
Shatter	2	90.7			3	4.2			1	7.6				
Total Cher Debitage	4	101.4	1	0.5	3	4.2	1	3.4	1	7.6				
MISC. MATERIAL														
Limestone	1	7									1	9.2		
Fire-cracked rock					1	5.6							1	3.1
Unmodified rock														
Total Misc. Material	1	7			1	5.6					1	9.2	1	3.1
PAGE TOTAL	5	108.4	1	0.5	4	9.8	1	3.4	1	7.6	1	9.2	1	3.1

Appendix B
(Off-Site Collection Grid 25)

	General Surface Collection Grid 25 Row 6 Unit 1		General Surface Collection Grid 25 Row 7 Unit 1		General Surface Collection Grid 25 Row 8 Unit 1		General Surface Collection Grid 25 Row 9 Unit 2		General Surface Collection Grid 25 Row 10 Unit 1		General Surface Collection Grid 25 Row 10 Unit 2		General Surface Collection Grid 25 Row 11 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Thin biface									1	3.2				
CHERT DEBITAGE														
Primary flake														
Secondary flake					1	6.1							1	4.2
Tertiary flake					1	1			2	27.4	1	0.1		
Broken flake														
Shatter	1	125.8	1	0.9	2	1.9								
Total Cher Debitage	1	125.8	1	0.9	4	9			2	27.4	1	0.1	1	4.2
MISC. MATERIAL														
Limestone														
Fire-cracked rock														
Unmodified rock			1	465.7			1	828.7					1	359.4
Total Misc. Material			1	465.7			1	828.7					1	359.4
PAGE TOTAL	1	125.8	2	466.6	4	9	1	828.7	3	30.6	1	0.1	2	363.6

Appendix B
(Off-Site Collection Grid 25)

	General Surface Collection Grid 25 Row 11 Unit 2		General Surface Collection Grid 25 Row 13 Unit 2	
	N	W(g)	N	W(g)
CHERT TOOLS				
Thin biface				
CHERT DEBITAGE				
Primary flake				
Secondary flake				
Tertiary flake				
Broken flake			1	0.8
Shatter	1	45.3		
Total Cher Debitage	1	45.3	1	0.8
MISC. MATERIAL				
Limestone				
Fire-cracked rock				
Unmodified rock			1	48.6
Total Misc. Material			1	48.6
PAGE TOTAL	1	45.3	2	49.4

Appendix B
(Off-Site Collection Grid 26)

	General Surface Collection Grid 26 Row 4 Unit 1		General Surface Collection Grid 26 Row 10 Unit 1		General Surface Collection Grid 26 Row 13 Unit 1		General Surface Collection Grid 26 Row 14 Unit 1		General Surface Collection Grid 26 Row 16 Unit 1		General Surface Collection Grid 26 Row 18 Unit 1		General Surface Collection Grid 26 Row 25 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT DEBITAGE														
Secondary flake													1	2.1
Broken flake					1	0.2			3	7.4	1	1.1		
Shatter	1	1.7	1	330.4							1	242.6		
Total Chert Debitage	1	1.7	1	330.4	1	0.2			3	7.4	2	243.7	1	2.1
MISC. MATERIAL														
Unmodified rock					1	2.5	1	2						
PAGE TOTAL	1	1.7	1	330.4	2	2.7	1	2	3	7.4	2	243.7	1	2.1

Appendix B
(Off-Site Collection Grid 26)

	General Surface Collection Grid 26 Row 27 Unit 1		General Surface Collection Grid 26 Row 29 Unit 1	
	N	W(g)	N	W(g)
CHERT DEBITAGE				
Secondary flake				
Broken flake	1	1.8	2	3.9
Shatter				
Total Chert Debitage	1	1.8	2	3.9
MISC. MATERIAL				
Unmodified rock				
PAGE TOTAL	1	1.8	2	3.9

Appendix B
(Off-Site Collection Grid 27)

	General Surface Collection Grid 27 Row 7 Unit 1		General Surface Collection Grid 27 Row 8 Unit 1		General Surface Collection Grid 27 Row 9 Unit 1		General Surface Collection Grid 27 Row 10 Unit 1		General Surface Collection Grid 27 Row 11 Unit 1		General Surface Collection Grid 27 Row 12 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT DEBITAGE												
Secondary flake							1	2.3				
Broken flake	1	2.3			1	0.9	1	0.1	1	6.7	1	1.2
Shatter	2	215.7	2	42.1	2	28.7	1	6.6				
Total Chert Debitage	3	218	2	42.1	3	29.6	3	9	1	6.7	1	1.2

Appendix B
(Off-Site Collction Grid 28)

	General Surface Collection Grid 28 Row 1 Unit 1		General Surface Collection Grid 28 Row 2 Unit 1		General Surface Collection Grid 28 Row 3 Unit 1		General Surface Collection Grid 28 Row 4 Unit 1		General Surface Collection Grid 28 Row 5 Unit 1		General Surface Collection Grid 28 Row 6 Unit 1		General Surface Collection Grid 28 Row 7 Unit 1	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT DEBITAGE														
Secondary flake			1	6.3	2	32.3	2	46.1						
Tertiary flake					1	0.8								
Shatter	1	12.7					1	0.5	2	80.4	1	71.6	1	54.1
Total Chert Debitage	1	12.7	1	6.3	3	33.1	3	46.6	2	80.4	1	71.6	1	54.1
Utilized Flakes							1							

Appendix B
(Machine Trenches)

	Sewer exploration trench- between Machine trench 11 & 12		Machine Trench 4		Machine Trench 6		Machine Trench 8		Machine Trench 9		Machine Trench 10		Machine Trench 11	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface														
Thick biface	1	37.4	1	7.9					1	31.9				
Thin biface			2	7.6										
Projectile point/Knife														
Total Chert Tools	1	37.4	3	15.5					1	31.9				
CHERT DEBITAGE														
Uni-directional core														
Multidirectional core			1	270.3										
Primary flake			3	73.0					1	17.6				
Secondary flake			4	48.6	2	9.0	1	4.7					6	89.7
Tertiary flake			3	21.2	1	3.4	1	24.0	1	12.1	1	8.5	3	6.2
Bifacial thin. flake														
Broken flake			2	2.0			2	0.8	1	0.7			2	5.5
Shatter	2	45.3			2	87.6	16	1111.0	5	668.7	2	88.1	9	143.1
Blades			15	974.9										
Total Chert Debitage	2	45.3	28	1390.0	5	100.0	20	1140.5	8	699.1	3	96.6	20	244.5
NONCHERT ARTIFACTS														
Hammerstone														
Pitted cobble														
Total Nonchert Lithics														
MISC. MATERIAL														
Limestone									1	7.5				
Fire-cracked rock											2	63.4		
Unmodified rock					1	27.9			1	597.5				
Total Misc. Material					1	27.9			2	605.0	2	63.4		
Page Total	3	82.7	31	1405.5	6	127.9	20	1140.5	11	1336.0	5	160.0	20	244.5
Utilized Flakes			1				1							

Appendix B
(Machine Trenches)

	Machine Trench 12		Machine Trench 14		Machine Trench 24		Machine Trench 26		Machine Trench 29		Machine Trench 30		Machine Trench 33	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Rough biface			3	421.6										
Thick biface														
Thin biface														
Projectile point/Knife														
Total Chert Tools			3	421.6										
CHERT DEBITAGE														
Uni-directional core			2	259.3										
Multidirectional core	2	452.5			1	67.9								
Primary flake	2	88.6	5	377.8	1	16.9	1	71.4						
Secondary flake	10	286.7	6	136.7	1	9.3							4	108.9
Tertiary flake	3	14.3			1	14.4			3	52.6			1	1.4
Bifacial thin. flake			2	10.7										
Broken flake	2	14.5	1	1.6	1	4.7								
Shatter	11	375.5	9	227.7	1	177.7	2	24.6	12	1392.2	1	40.0	6	194.4
Blades	1	21.5							1	9.1				
Total Chert Debitage	31	1253.6	25	1013.8	6	290.9	3	96.0	16	1453.9	1	40.0	11	304.7
NONCHERT ARTIFACTS														
Hammerstone													1	796.3
Pitted cobble									1	434.8				
Total Nonchert Lithics									1	434.8			1	796.3
MISC. MATERIAL														
Limestone					1	402.9								
Fire-cracked rock			5	273.1										
Unmodified rock			1	180.9	1	75.8			1	640.8				
Total Misc. Material			6	454.0	2	478.7			1	640.8				
Page Total	31	1253.6	34	1889.4	8	769.6	3	96.0	18	2529.5	1	40.0	12	1101.0
Utilized Flakes	4				1									

Appendix B
(Machine Trenches)

	Machine Trench 35		Machine Trench 37		Machine Trench 82	
	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS						
Rough biface						
Thick biface						
Thin biface						
Projectile point/Knife			1	49.4		
Total Chert Tools			1	49.4		
CHERT DEBITAGE						
Uni-directional core						
Multidirectional core	1	71.5				
Primary flake			1	19.3		
Secondary flake	4	35.8	5	33.8		
Tertiary flake	2	4.7	2	11.1		
Bifacial thin. flake						
Broken flake			4	19.8	1	23.4
Shatter	14	386.9	12	689.2		
Blades						
Total Chert Debitage	21	498.9	24	773.2	1	23.4
NONCHERT ARTIFACTS						
Hammerstone						
Pitted cobble						
Total Nonchert Lithics						
MISC. MATERIAL						
Limestone						
Fire-cracked rock						
Unmodified rock						
Total Misc. Material						
Page Total	21	498.9	25	822.6	1	23.4
Utilized Flakes			1			

Appendix B
(Piece Plots)

	Collection Grid 2 piece plot 6		Collection Grid 3 piece plot 7		Collection Grid 3 row 11 unit 1 piece plot 8		Collection Grid 4 row 18 unit 1 piece plot 9		Collection Grid 5 row 32 unit 1 piece plot 11		Collection Grid 10 row 38 unit 1 piece plot 13		Collection Grid 26 row 14 unit 1 piece plot 31	
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT TOOLS														
Thin biface			1	6.3					1	4.0				
Projectile point/Knife					1	4.7	1	9.6			1	12.3	1	10.5
Bifacial scraper	1	12.9												
Total Chert Tools	1	12.9	1	6.3	1	4.7	1	9.6	1	4.0	1	12.3	1	10.5

Appendix B
(Postholes)

	Ridge SE of ravine Post Hole 1		Ridge SE of ravine Post Hole 1		Ridge SE of ravine Post Hole 1		Ridge SE of ravine Post Hole 2		Ridge SE of ravine Post Hole 3	
	Line 1	0-10cm	Line 3	0-10cm	Line ?	30-40cm	Line 3	0-10cm	Line 1	0-10cm
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)
CHERT DEBITAGE										
Tertiary flake							1	14.8	1	2.1
Broken flake	1	2.0	1	0.2						
Shatter	1	0.1			1	0.1				
Total Chert Debitage	2	2.1	1	0.2	1	0.1	1	14.8	1	2.1

Appendix B
(Test Units)

	Test Unit 1 0-10cm		Test Unit 1 10-20cm		Test Unit 1 20-30cm		Test Unit 1 30-40cm		Test Unit 1 40-50cm		Test Unit 1 50-60cm		Test Unit 3 A horizon		
	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N	W(g)	N
CHERT DEBITAGE															
Primary flake			1	3.1	1	0.4	1	0.2			2	3.4			
Secondary flake			2	4.7	3	3	1	0.3	2	3					2
Tertiary flake	4	4.7	3	2.2	5	2.1	4	0.9	8	11.4	2	0.2	1	0.1	2
Biface thin. flake	1	0.2					2	1							1
Broken flake	3	0.9	11	4.4	6	14.3	4	3.1	4	1.7	4	2.2	2	1.1	7
Shatter	3	8.3	11	32.1	28	363.3	18	78.4	7	8.8	7	11.9	22	182.5	54
Total Chert Debitage	11	14.1	28	46.5	43	383.1	30	83.9	21	24.9	15	17.7	25	183.7	66
MISC. MATERIAL															
Limestone			2	3.5	6	35.1			1	6.8			1	26.9	5
Fire-cracked rock			3	1.7											
Unmodified rock					1	0.6			1	0.5	1	0.9	2	1.1	4
Daub					1	0.4									
Botanical remains															1
Prehistoric ceramics															
Historic material	4	17.5													1
Total Misc. Material	4	17.5	5	5.2	8	36.1			2	7.3	1	0.9	3	28	11
PAGE TOTAL	15	31.6	33	51.7	51	419.2	30	83.9	23	32.2	16	18.6	28	211.7	77

	Test Unit 3 B horizon W(g)	N	Test Unit 3 BE horizon W(g)
CHERT DEBITAGE			
Primary flake		2	1.7
Secondary flake	14.9	1	0.4
Tertiary flake	1.2	3	10.7
Biface thin. flake	1.3		
Broken flake	4.1	4	2.8
Shatter	268.9	16	79.9
Total Chert Debitage	290.4	26	95.5
MISC. MATERIAL			
Limestone	9.8		
Fire-cracked rock		5	5.5
Unmodified rock	2.3		
Daub			
Botanical remains	0.4		
Prehistoric ceramics		1	0.1
Historic material	14.9	1	2.5
Total Misc. Material	27.4	7	8.1
PAGE TOTAL	317.8	33	103.6